AMATEUR TELEVISION QUARTERLY

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FALL 1995

$4.95

Dr. Elmo Knoch, K5YWL, Harrison, AR. current record holder, land ATV DX

information, news, entertainment
from the world of ATV

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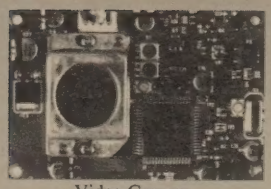

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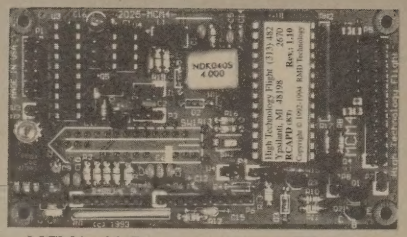

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Data

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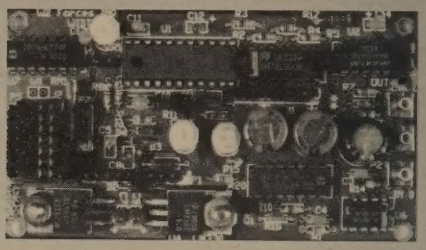

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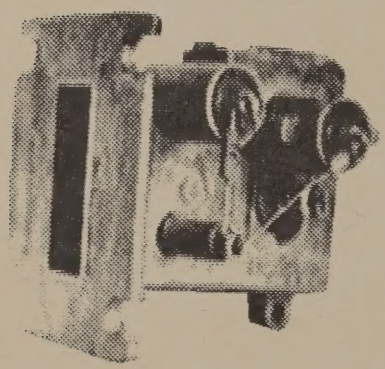

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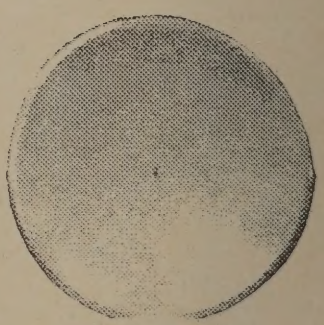

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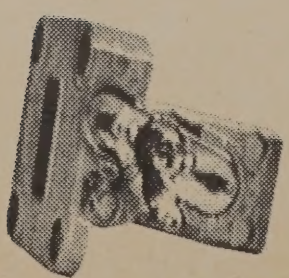

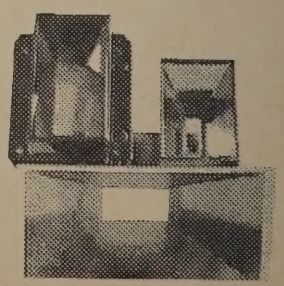

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AMATEUR TELEVISION QUARTERLY

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Re-draft of drawings by Bill Parker W8DMR
Typist, Debra Gillespie

Index

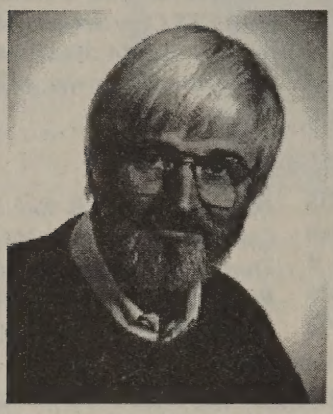
Because this issue is all information, news and entertainment, and I want you to read through all of it, even the humor to keep your spirits up, there is no index this issue! Send in some technical material for next issue. Deadline is January 20th, 1996.

Authors guide: Send in something legible. If you can do it in typewritten (computer print out) form in a laser text great, dot matrix is OK too. You can send it by E-mail to ATVQ on America OnLine, or via the US Snail to ATVQ 3 N Court St., Crown Point, IN 46307. If you send a computer disk, have it formated to an IBM (dos) machine, not Mac. If possible use WordPerfect, any version, or something that will convert. Diagrams should be clear, on plain paper (not lined) not Xerox copies. Photos can be color or black and white. If you have spell check, use it. Since this is a one person philanthrophic effort we do not pay for material. If you want a free subscription in exchange or if I can find any Test Pattern mugs you can have one of those. ATVQ accepts all material at the authors risk. Indicate if you want any of it back. ATVQ also accepts and may publish any mail it receives via its electronic mailboxes. We publish the authors information as it is on the E-mail header. We try to be as accurate as any other publication, but sometimes we are as bad as the others too. Most material is done in WP 5.2 and layout is in PageMaker. 5.0 If it doesn't translate well, we don't always catch it.

Because my work schedule starts at 7 am to 7-9 PM, and most weekends lose at least one day to remotes and other broadcast stuff at my real life job, the best way to "talk" to me is via E-mail or fax, lastly the answering machine. I get to it about once a week. You can also find me at home typically sundays between 10am and 4 pm, if I'm not working, or saturday 9 am to 3 pm, if I am not working. That's how life is these days. Oh yeah, we have 18 dogs and 4 cats now, and the wife operates a kennel business. Want to buy any Beagle or Doberman pups?? 73 Henry KB9FO

SSTV
HOW IT ALL BEGAN

by Copthron MacDonald VY2CM



Copthorn MacDonald VY2CM

An excerpt from an excellent SSTV handbook by John Langner. Contact him at Johnl@world.std.com. The text and copius pictures take the reader through each step and system used in SSTV. Both older systems and the multiple newer systems both software and hardware are covered in depth. An excellent read. 73 Henry KB9FO

I got my ham license in 1951 at age 15, and like many hams of that era, the bug hit hard. I worked my way through the University of Kentucky's engineering school, taking 5 years to go through, working nights and weekends out at the transmitter of a local 5 kW AM station. Naturally, I was hamming on the way to and from work in my oil-guzzling 1948 Chrysler. The rig was a 15 watt surplus WWII AM rig that took up most of the leg room under the dash.

One day in 1957 I was in the engineering school's library, thumbing through the Bell System Technical Journal, when I came across an article on some Bell Labs signature transmission experiments using ordinary phone lines. For the first time I realized that picture transmission didn't necessarily mean extremely wide bandwidth. And being the ardent ham I was, I instantly wondered if some sort of practical SSTV system could be worked out for ham radio.

I spent my spare time during the next few months looking into the feasibility of the idea. What sort of display tubes were available? (ans: P7 phosphor.) How did you get frequency response down to DC if ham rig audio response cut off at 300 Hz? (ans: Modulate an audio sub carrier.) I kept waiting for the fatal flaw to appear, but I saw none. The idea looked feasible.

I took my paper feasibility study to the head of the EE Department, and asked him if I could design and build such a system as part of an independent problem course. (This would give me a few credits as well as legitimize my use of school facilities for the project.) He agreed, and I ordered surplus CRTs and power transformers and such from surplus houses like Fair Radio Sales in Lima, Ohio. During the next 6 months I designed the unit stage by stage, built a "tank" of a flying spot scanner in the school's machine shop, and put it all together. I still kept waiting for the fatal flaw to appear, but it never did. The system worked!

What is now the Citizen's Band was at that time the 11 meter ham band. All sorts of strange emissions were allowed on 11 meters then, and the first on-air tests were conducted on that band. Since only one set of SSTV equipment existed, audio tape recordings of the SSTV signal were transmitted on the air by one ham station. At the receiving station we listened to this weird sound coming out of the receiver's loudspeaker as we watched the transmitted pictures being painted in light on the screen of the P7 (long-persistence phosphor, radar-type) cathode ray tube.

I wrote a paper describing the system, and entered it in the American Institute of Electrical Engineers (now IEEE) student paper competition in 1958. It won national first prize that year. The ham community first heard about the system in articles that appeared in the August and September 1958 issues of QST magazine.

Shortly thereafter we hams lost the 11 meter band to CB, and had no long-distance HF frequencies on which to use SSTV. I spent the next 10 years working with hams like Don Miller, W9NCP, and Robert Gervenack, W7FEN in specially authorized on-air tests to convince the FCC that slow-scan would cause no problems to regular ham operations.

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UHF PREAMPS

Looking for the ultimate mast mounted preamp for your ATV station?

SSB electronics has a new series of preamps, which include front end filters to reject out of band signals. Most of us have been using other brands. My collection of ARR preamps work well, but in the Chicago area, the front end overload from the TV stations and other sources prevented their effective use in some directions. The new SSB electronic preamps showed no signs of front end overload, and the usual reception of WYCC channel 20 did not appear on 439.25. I took one to work, about 1.5 miles from the Hancock building, where WYCC has their antenna. This area has RF so intense it completely blocks the receivers in my Kenwood 733 multiband radio, and my 741 has a hard time too. Using a roof top antenna with line of sight I tried to check the ATV receive of the KB9FO repeater, which I turned down to 1 watt for the test, (located at the Sears tower) on 421.25. Usually there is no signal because of blockage/overload on the PC receiver. Using the ARR produces nothing but intermod products from the overload. The SSB unit not only worked, but there were no observable overload / intermod products. I was able to see the 1 watt signal from three miles away with no interference from out of band signals. Add this one to your Christmas shopping list!

The two meter model is SP2000, the 440 MHz version is SP7000. Each sells for $249.95. You can RF sense switch up to 200 watts on 2 meters, or 100 watts on 440. If you run a separate line to switch the preamp on/off, the power ratings go to 750/500 respectively. Noise figure spec is .8/.9 dB. At the 1993/94 Eastern VHF society NF contest the unit measured a .61 dB NF and 21.45 dB gain. The SSB electronics LNA145 measured .25dB (WOW) and LNA435 measured .37 dB (outstanding!). SSB also offers spectacular performance units for 23 cm and 13 cm bands. Call SSB electronics at 717 868 5643. Mention ATVQ.
73 Henry KB9FO

HOW OTHERS SEE US

From: bbattles@arrl.org (Battles, Brian, WS1O)
To: ATVQ@aol.com ('ATV Quarterly (Henry Ruh)')

A Girl's Guide to Geek Guys
By Mikki Halpin and Victoria Maat

So your crush on the bass player from Vibrating Sandbox has finally died a whimpering death and you're wondering where to go from here. All the sinister dudes are either dating a series of interchangeable high-school riot girls in baby doll dresses and an overdose of manic panic, or permanently shacked up with some bitter old lady who pays all the bills. Which will it be, a wifely prison or a humiliating one-night-stand? Into this void of potential mates comes a man you may not have considered before, a man of substance, quietude and stability, a cerebral creature with a culture all his own. In short, a geek.

Why Geek Dudes Rule

A) They are generally available.
B) Other women will tend not to steal them.
C) They can fix things.
D) Your parents will love them.
E) They're smart.

Where The Geek Dude Lurks

Although they're often into alternative music, geek dudes tend not to go to shows too often. Instead you'll find them hanging out with their friends, discussing the latest hardware revolution or perfecting their Bill Gates impressions. You know how some people wear T-shirts with their favorite bands on them, thus showing that they went to certain shows? Geek dudes wear T-shirts with the logos of software companies on them, thus showing that they are up on the latest, um, releases. A small, though convivial, rivalry may be detected here amongst the geek dudes. Try wearing one yourself and see if he strikes up a conversation.

The best way to meet a geek dude is through the Internet. All geeks harbor a secret fantasy about meeting some girl in cyberspace, carrying on an e-mail romance in which he has the chance to combine an activity he's comfortable with, computing, with one he's uncomfortable with, socializing. To many geek dudes, cyberdating is just an advanced form of some kind of video game, but they're frustrated by a lack of players. Their lack is your strength.

Imprinting

You might notice that these men harbor strange ideas about how the world works and particularly strange ideas about women. There is a reason for this. Because they've had limited interpersonal experience, geek dudes must look elsewhere for behavior models. Lacking a real world social milieu, geeks often go through a transference stage with such narratives, and try to model their interactions on them. Thus, certain media images and themes come to have an overly cathected, metaphorized reality to them, while the rest of us view such programming as mere entertainment. Case in point, our next topic...

The Trek factor

If you're not up on your Star Trek, you can forget about getting or keeping a geek dude. And we're not just talking vintage-era Captain Kirk and Spock, either. You've got to be up on your The Next Generation, your Deep Space Nine, your Babylon 5. Armed with your own knowledge of Federation policies, you can better gauge when and how to act. The sexual politics of Star Trek are pretty blunt: the men run the technology and the ship, and the women are caretakers (a doctor and a counselor). Note the sexual tensions on the bridge of the Enterprise: the women, in skin tight uniforms, and with luxuriant, flowing hair. The men, often balding, and sporting some sort of permanently attached computer auxiliary.

This world metaphorizes the fantasies of the geek dude, who sees himself in the geeky-but-heroic male officers and who secretly desires a sexy, smart, Deanna or Bev to come along and deferentially accept him for who he is. If you're willing to accept that this is his starting point for reality, you're ready for a geek relationship.

Once You've Nabbed Him

Catching that geek guy is only half the battle. Keeping him by your side is another story altogether. I was privileged to speak with Miss Victoria Maat, who not only got herself a geek guy, but was clever enough to marry him just

A Girl's Guide to Geek Guys

a few short months ago. She interrupted her newlywed bliss to give us a few tips on the care and feeding of a geek man: Geeks are sensitive and caring lovers and husbands. If you can hang with the techno-lifestyle, they make the best mates. They are the most attractive people, not flashy or hunky, but the kind who get cuter and more alluring over time (I told you she was a newlywed). Definitely give geeks a chance.

Geek Cuisine

Geeks tend towards packaged, junk foods because they prefer to work and think and aren't all that into cooking for themselves. Make sure your geek understands that you aren't merely a replicator, and provide him with home-cooked food. A batch of chocolate chip cookies will let him know that you love him. You do have to monitor your geek for weight gain; however, remember that most of their days are spent sitting and staring at a monitor.

Geek Lifestyle

The geek dude has long work habits and tends to bring his work home with him. He seems permanently connected to his hard disk. You must at least appear interested in his work. Generally, a solid understanding of the computer is a must; if you can't master this, you should at least be able to talk the talk. Most geeks are anal retentive and get stressed about details that appear insignificant. Be understanding, put on your best Deanna Troi face (see above) and empathize.

To relax, geeks love to play the latest computer games. Let him play Myst or Chuck Yeager's Air Combat for hours if he wants to. Act concerned if he's stuck or has just been ambushed by three MiGs. My geek loves to try to help people on the Internet who say they're stuck in Myst. He comes up with clever riddles instead of directing them point blank. Geeks also like to go to sci-fi and Japanese animated movies, again, a basically harmless vent for your man.

Geek Buddies

Many geeks extend their work friendships into what they jokingly refer to as RL (Real Life, also known as "that big room with the ceiling that is sometimes blue and sometimes black with little lights"). The greatest thing about your geek's buddies is that you can feel secure in setting them up with your girlfriends. They may feel awkward around females at first, so don't overwhelm them. In time they'll come out of their shell and realize that you're into the same things they are.

Post-It Note

I thank Victoria for the above advice. I must say that when she read my draft of the piece, before writing her section, she asked her husband which one he thought she was more like, Deanna or Beverly. Howard, the devil, immediately replied that he had always thought Victoria was actually most like Ensign Ro Laren, a cute character with a slight authority problem who is always in trouble (this is fairly apt). This exchange is interesting for several reasons:

Howard had already thought about who she was most like.

He could summon up characters from seasons past with ease.

Victoria actually knew who he meant.

Folks, I think this marriage will last.

One Last Thing

Because they have been so abused and ignored by society, many geeks have gone underground. You may actually know some and just haven't noticed them. They often feel resentful, and misunderstood, and it's important to realize this as you grow closer to them. Don't ever try to force the issue, or make crazy demands that he choose between his computer and you. Remember, his computer has been there for him his whole life; you are a new interloper he hasn't quite grasped yet. Geek dudes thrive on mystery and love challenges and intellectual puzzles. Don't you consider yourself one? Wouldn't you like a little intellectual stimulation of your own? We thought so.

We technotypes tend to take life too seriously from time to time. Just substitute ATV for computer, and video for software. Now go pet the dog and visit the spouse. Have a good time. 73 Henry KB9FO

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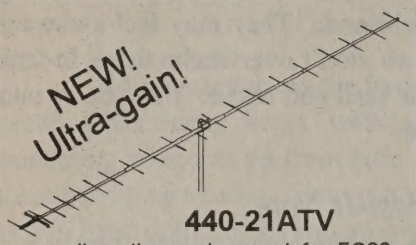
YOUR ATV ANTENNA SOURCE ...



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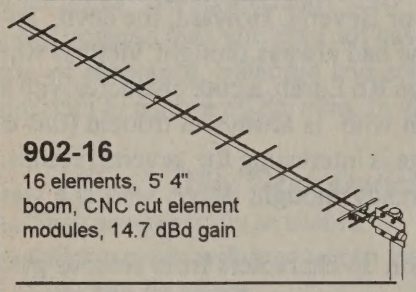
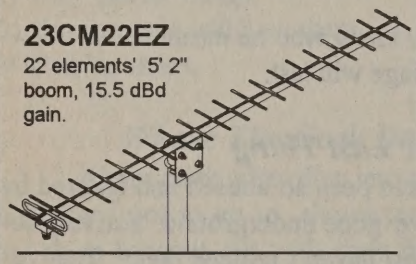


902-16
16 elements, 5' 4" boom, CNC cut element modules, 14.7 dBd gain



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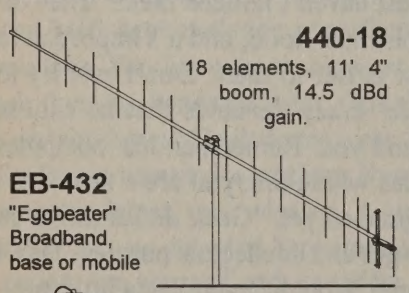

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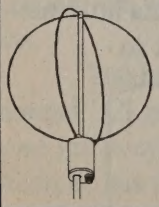

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DISC VISA

ATV'er builds world's first digital non-linear ENG/EFP truck.

Broadcasting has been going digital as fast as Intel can make 486's and Pentiums. Much of the equipment has been an analog with insides converted to digital, or tape transports with the analog signals digitized then undigitized so it can be called "digital." But, D/A and A/D conversions do not make the process digital, only digitized.

The true digital video world is built around computers. These manipulate data, whether bank accounts and dollars, or spreadsheets and timesheets, or audio and video. AVID Technology and other computer companies have been making true digital audio/video data manipulators. These and others, based on Silicon Graphics platforms, MPEG platforms or other computer world systems actually work in the digital domain, not a digitized version of the analog domain.

The digital systems usually find themselves in production house, network or station edit rooms, as work islands. Henry Ruh KB9FO, had other ideas. Faced with a demand to produce a single van type vehicle which would be able to produce live news, (ENG) commercial remotes and productions (EFP) and full outside broadcast programs (OBV) with multiple cameras was a challenge for the digital age. Armed with one of eight AVID systems, and a Sony digital switcher, the truck took form. The truck has five equipment racks, seats up to six people, & roof platforms for two more as camera or talent. It is equipped with three video switchers, two audio mixers, one tape machine (BetaSP) and enough communications gear to make any mobile ham envious. A tiara of over 12 antennas festoon the front of the truck, plus microwave send and receive systems.

The Digital switcher and AVID non linear digital editor computer allow on-board recording, manipulation and broadcast of material completely in the digital domain. The system meets all the goals and more. Up to four cameras can be attached to the truck, or other sources, as well as up to 16 audio sources. Wireless intercom to/from the station and field talent is complimented by wireless PL, IFB, microphones, cameras and radio links. Two radio systems, two cell phones and up to four land line telco's can be used. Cameras are controlled and "painted" by digital control systems from the truck. A single coax sends control signals, intercom, program audio video, tally, teleprompter data to the camera and returns camera video and microphone audio to the truck.

The digital editor and switcher allow an infinite combination of effects (over 4000 pre-programmed) video layers, audio mixing, all in digital format so there is no generational loss. This is the first TV broadcast vehicle with an on-board digital non-linear editing system. Those who have seen the truck agree, there is not a better TV production vehicle this size anywhere. A truly world class system in a compact van. The broadcast magazines will have articles about this unique TV truck in the months to come.

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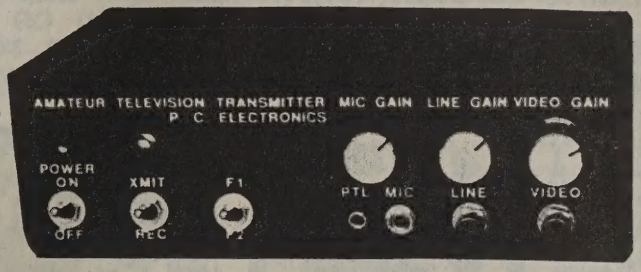

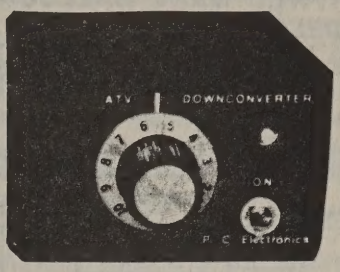

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TX70-1b SPECIAL FEATURES:

* Two frequency 1.5 W p.e.p. continuous duty transmitter properly matches linear amps with adjustable internal sync stretcher on the time proven KPA5 transmitter board
* Built-in RF T/R relay board switches antenna and applied 13.8 Vdc between transmitter amd your external ATV downconverter
* Full 25 kHz dev. broadcast standard 4.5 MHz sound subcarrier with independant mic and line audio controls allow voice over commenting while showing home video tapes. Accepts low impedance dynamic mics with "Push to Look" switch.
* Transmit RF detected composite video outputs to monitor phono jack on back to see what you are transmitting. In receive you see your own direct camera video at this jack to enable focus and lighting set-up before flipping the switch into transmit.
* RCA phono jack camcorder or VCR composite 75 Ohm video and line audio inputs, type N 50 Ohm antenna input, and 50 Ohm BNC output to downconverter connectors
* Small rugged shielded cabinet - 7.3 x 4.7 x 2.1", 1lb. 11 oz.

Just plug in your camera,VCR, camcorder, etc. composite video and audio, 70cm antenna, 12 to 14 Vdc @ .5A, and you are ready to transmit live action color or black and white pictures with sound to other amateurs. Specify 439.25, 434.0, 427.25 or 426.25 MHz transmit frequency. 1 crystal included, second crystal add $20.

*Transmitting equipment sold only to licensed Tech class or higher radio amateurs verified in the Callbook for legal purposes. If newly licensed, moved or upgraded, mail or fax copy of license or test certification.

WHAT ELSE DOES IT TAKE TO GET ON ATV?

Any code free Tech class or higher amateur can get on 70cm ATV with full color and sound. Any video camera, camcorder, VCR or computer with a composite video output can be plugged into the front panel phono jacks for both audio and video transmission.

Start by selecting a 70cm antenna and connecting a TVC-4G downconverter to your TV set to receive. Add the Transmitter along with your camcorder and 13.8 Vdc from a regulated power supply capable of .5 Amps and you are on the air. It's easy!

DX with TX70-1b's and KLM 440-16X antennas line of sight and snow free is over 22 miles, 7 miles with the 440-6X normally used for portable uses like parades, races, search & rescue, damage accessment, etc. For greater DX or punching thru obstacles add either of the ATV compatible 15, 50 or 70 watt amps listed below.

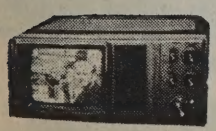
The TX70-1b has full bandwidth for color, sound and live action just like broadcast. You can show the shack, home video tapes, computer programs, repeat SSTV, weather radar, or even Space Shuttle video if you have a home satellite receiver. See 85 to 94 ARRL Handbook chapters 20 & 7, or new 1995-6 edition chapt. 12 for more info and Repeater Directory for local ATV repeaters.

BUY BOTH AND SAVE $19

If you order both the TX70-1b and the TVC-4G at the same time, the special package price is $349

Most telephone orders shipped within 24 Hours **1/96**

COMPLETE 70CM ATV STATION



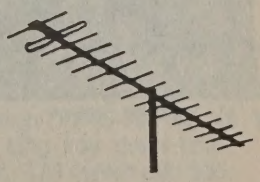
Your TV set

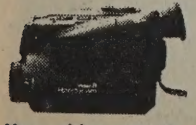
+

+

D26N

+





Your video camera or camcorder

+ TX70-1b-$279 & TVC-4G-$89 ATV Xmit & Downconverter
1.5 Watts p.e.p. Specify frequency(s) 439.25, 434.0, 427.25 or 426.25 MHz 2nd crystal add $20
13.8 Vdc @ .5A Power Supply required

Optional matching Amplifiers

RFC Mini-Amp 440-N 12-18W out ..$110
Mirage D15N 15 Watts RF out $176
Mirage D26N 50 Watts RF out $249
Mirage D100ATVN 70 Watts out ..$369

Antennas see page 5

Rutland FO22-ATV 15.8 dBd..$139
Swiech COY43419EL 14dBd $129
KLM 440-16X 14 dBd $139
KLM 440-10X 11 dBd $77
KLM 440-6X 8.9 dBd $60

Remember when comparing prices, ours include UPS surface shipping in cont. USA.

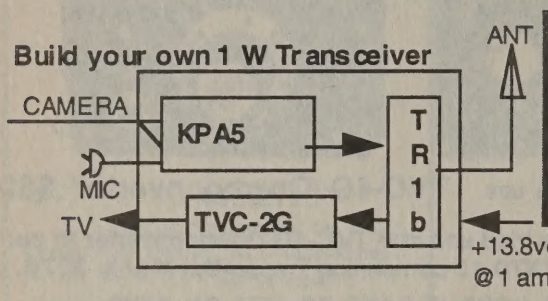
HAMS, call (818) 447-4565 now for your complete 10 page catalogue of our ATV products!

P.C. ELECTRONICS 2522 PAXSON LANE ARCADIA CA 91007-8537 USA
TOM (W6ORG) & MARYANN (WB6YSS) O'HARA (818)447-4565
24 hr **FAX** order line (818) 447-0489

ELECTRONICS

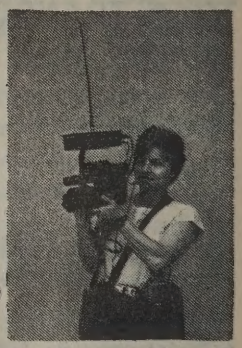
THE "KREEPIE PEEPIE" ATV TRANSMITTER

THIS IS THE 420 - 450 MHz BAND ATV TRANSMITTER BOARD YOU HAVE READ ABOUT THAT HAS SURVIVED MANY BALLOON FLIGHTS TO OVER *100,000 FEET* AND BACK. ALSO USED FOR R/C MODELS WHERE AN ALL IN ONE BOARD WITH SOUND IS DESIRED OR FOR DEDICATED LINKS AND REPEATERS. JUST THE THING FOR THE BUILDER WHO WANTS TO PACKAGE AND MAKE HIS OWN PORTABLE OR HOME TRANSCEIVER WITH A WIRED AND TESTED BOARD.



3.25 x 4"

KPA5-F board only $169



KPA5-F 70CM ATV XMTR BOARD FEATURES:

- 1.5 Watts P.E.P. typical RF output. Run barefoot for portable, but if needed for greatert DX, the output properly matches the Mirage D15N 15 watt, D26N-ATV 50 Watt linear amp for full output or D100TVN to over 70 Watts with its adjustable sync stretcher. Same board as used in TX70-1b.
- FULL COLOR AND SOUND on a small 3.25 x 4" board
- Wired and tested board runs on external 13.8 Vdc @ 300 mA. supply or 12 V battery. Weighs only 3 oz.
- Accepts composite video from cameras, camcorders, VCRs, computers, etc. 2 audio inputs, one for low Z dynamic mic, & one line level from most cameras & VCRs. Transmit monitor output enables seeing your own true RF detected video.

ACCESSORIES:

L.M.B. CAB247 7.3x4.7x2" roomy aluminum box.....**$22**
CAB234 4.6x3.6x2" aluminum box, smaller tighter fit.....**$14**
100 Ohm carbon panel pot for video gain control.....**$5**
TR-1b RF T/R relay module, mounts on chassis N conn.....**$29**
UG58 N fem.chassis jack..**$2.** **UG21** male 9913 plug..**$5**
TVC-4G..$89 or TVC-2G..$49 Downconverter (pg 5)
RG174 50 Ohm 1/10 inch dia. coax cable, 6ft.....**$3**
RF CONCEPTS Mini-Amp 440-N 1.5 in /12-18 out ...**$119**
MIRAGE D15N-ATV 1.5 in /15 out all mode amp.....**$176**
MIRAGE D26N-ATV 1.5 in / 50 out all mode amp.....**$249**

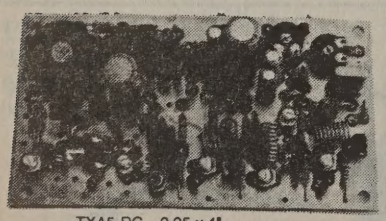
KPA5 APPLICATION:

PORTABLE CORDLESS TV CAMERA. Think of it as a video HT. Place the KPA5 in one of the L.M.B. Diecast aluminum boxes, Diamond RH77CA half wave on top or at the end of 50Ω coax attached to a headset. Plug into a 12 to 13.8V source such as a 12 Vdc battery pack. Depending on terrain & receiving antenna DX is typically over 1 mile. Then at home with KLM 440-16X antennas at both ends DX is >22 miles snow-free line-of-sight.

Price only $169 supplied with one crystal on 426.25, 434.0, 427.25 or 439.25. 2nd xtal add $20. Has 2 relay switched crystal sockets. Specify frequency(s) when ordering, check with local ATVers, ARRL Repeater Directory or call us. Sold only to code free Technician class or higher licensed radio amateurs.

MIRAGE D100TVN 1.5 in/70 out all mode amp.....**$369**
DIAMOND RH77CA 2m/70cm omni antenna, BNC, 15"...**$30**
DIAMOND RH951 2m/70/23cm omni antenna, BNC, 15"..**$52**
DIAMOND NR-770H 2m/70cm mobile ant. , UHF, 3/5.5 dB**$59**
DIAMOND MX-72N 2m/70cm antenna duplexer.....**$59**
AEA 450 ISOPOLE omni 4 dBd vert. gain antenna, N...**$89**
KLM 440-6X 8.9 dBd ant., 28" boom, >50 deg. BW.....**$60**
KLM 440-10X 11.2 dBd, antenna, 64" boom.....**$77**
KLM 440-16X 14.2 dBd antenna, 10.5 ft boom...**$139**
1000 pF Feed-thru Cap for R/C or repeater builders.....**$4**

SMALL TXA5-RC 1 WATT ATV TRANSMITTER.....$129



TXA5-RC 2.25 x 4"

Designed primarily for Radio Control models, rockets, balloons, etc. with it's small 2.25 x 4 inch size and 2 oz. weight. Adjustable power output from 1.5 p.e.p. to 100 mW. Draws 350 MA @ 13.8 Vdc at 1 Watt, 200 ma at 100 mW. Has adjustable sync stretcher and provisions for sound from the FMA5-F board (pg 2) in case your application needs higher power sometimes or subcarrier sound. Comes wired and tested ready for you to mount in a shielded enclosure, connect up coax from antenna and camera and wires to power source. Plan on shielding your R/C receiver and adding the simple antenna low pass filter supplied with the application note. Receive with one of our 70 cm downconverters listed on page 5 and a TV set. Specify freq., 426.25 MHz suggested for R/C, other standard ATV freq. avail.

TXA5-70b board can also be used for R/C applications where 2 frequency capability is desired. Same size as TXA5-RC but 80 mw.for .25 to 5 mile DX, or add 10 Watt PA5 amp for 3 to over 100 mile line of sight DX. See page 2....**$89**

ATVM-70 Transmitter MSC-2 Sound

MICROTEK ATVM-70 MINI ATV transmitter board.....$209
Only 1.0 x 1.3 inch, wired and tested board. See article in July 91 73 Magazine page 9. Nominal output 80 mw. Capable of driving the PA5 for higher power. Requires 7.0 to 10.0 Vdc maximum at <100 ma. Only 434.0 MHz is available with the SAW oscillator. Also Great for R/C models, robots, demos or short links. Snow free line of sight DX1/4 mile dipole to dipole or up to 5 miles with KLM 440-16X beam antennas.

MSC-2 companion 4.5 MHz sound subcarrier board, same board size as ATVM70...**$59**

Remember when comparing prices, ours include UPS surface shipping in cont. USA. 1/96

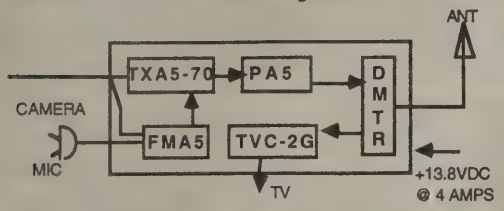
HAMS, call (818) 447-4565 now for your complete 10 page catalogue of our ATV products!

P.C. ELECTRONICS 2522 PAXSON LANE ARCADIA CA 91007-8537 USA
TOM (W6ORG) & MARYANN (WB6YSS) O'HARA (818)447-4565
24 hr **FAX** order line (818) 447-0489

ELECTRONICS

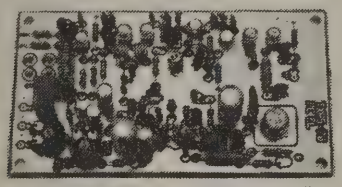
BUILD YOUR OWN 70 cm 10 Watt ATV STATION

Basic 10 Watt system - 3 Transmitting modules as seen in the Handbook



420-450 MHz BAND

See chapters 20 & 7 in the 85 to 94 *ARRL Handbook* or chapter 12 in 1995-6. These modules are the latest upgraded generations. Mount the boards & parts for a 10 to 15 Watt basic module ATV transceiver in a 3x8x12" aluminum chassis for shielding and heat sinking, or Hammond 1590F die cast aluminum box like we did for the TC70-10. Use the DMTR-70-10 module to switch your 50Ω 70cm antenna between PA5 amp and TVC-2G (page 5) downconverter. Schematic & layout comes with each module.

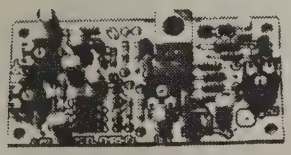


TXA5-70B 4.0"x2.25"

TXA5-70b ATV EXCITER/MODULATOR.....$89
Replaces TXA5-5. Smaller board for stand alone portable or R/C applications in addition to 10 Watt systems. Wired and tested board. Adjustable 50-80 mW output to properly drive the PA5 10 Watt module and in turn the 100W 4-110 or D1010N-ATV. Built-in sync stretcher. Accepts standard 1 volt composite video from color camera, VCR, computer, etc. Wideband modulator gives excellent color and high resolution. Draws 70 mA at 13.8 Vdc. One crystal included, but relay switch between 2 sockets. **Extra crystals $20.** We stock 439.25, 434.0, 427.25 & 426.25 MHz, other 70 cm freq. may take 4 weeks to special order xtal. 100 Ohm carbon panel pot for video gain **$5.**

PA5 3.5"x2.0"

PA5 10 WATT P.E.P. ATV POWER MODULE.....$99
An all mode Toshiba S-AU4 is mounted on a heatsink with a stripline PC board to output over 10 Watts p.e.p. when driven by 80 mW from the TXA5-70. 50 Ohms in & out. Broadband, 420-450 MHz, linear, no tuning. 250 mW max RF input, do not use with 1 Watt modules. req. 13.8Vdc reg. @ 3 amps.



FMA5-F 3"x1.5"

FMA5-F AUDIO SUBCARRIER GENERATOR.....$39
Temperature stablized VCO with adjustable deviation to more than 25 kHz. Transmits broadcast standard sound with your picture. Accepts a Low Z mic (100-600 Ohms), also line level audio from VCRs, camera mics, computers, etc. Up to 1 v pk-pk drive to the TXA5-70, TXA5-RC or TXA5-33 exciter modulators. Works with any transmitter having 5 MHz modulation bandwidth. Draws 20 ma from 13.8 Vdc supply. We can special set the freq. for FM or PAL up to 6.8 MHz.

DMTR -70-10 2.2x2.2"

TR-1b 2 x 1.8"

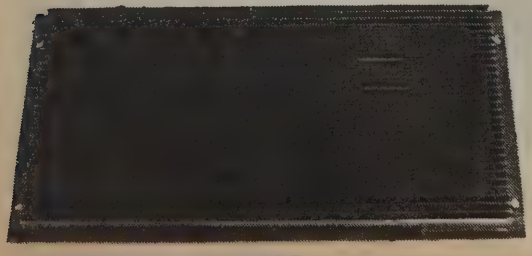
DMTR-70-10 T/R RELAY, DETECTOR & MONITOR.....$45
T/R switching for up to 15 Watt 70cm ATV systems. Negligible insertion loss, 60dB isolation. Mounts on flange type UG58 N chassis jack (**$2**). Relays for switching + power to all basic modules, camera video in rec. to detected output video in xmit. to monitor. 2.2x2.2". 13.8Vdc @ 120 ma.

TR-1b 70cm T/R RELAY BOARD.....$29
Simple 15W T/R relay and up to 1A +13.8 power relay. Mounts on UG58 jack.

RFC 4-110

D1010N-ATV or D100ATVN

4-110 RF CONCEPTS 100 WATT P.E.P. AMP.....$359
420-450 MHz all mode: FM, SSB,CW, & ATV. Good color and sound from the 10 Watt basic modules or TC70-10. Sync power (p.e.p.) 100 Watts with blanking set for 60 Watts (6-7 Watt sync, 2-3 Watt blanking set up). ATV duty cycle 10 min on /5 off, other modes 5 on/5 off. RF sense T/R switching. 12x3x5.5". Req. 13.8 Vdc @ 22A. 15 Watts max drive. Receive Preamp.
MIRAGE D1010N-ATV similar TX specs as 4-110, req 13.8 Vdc @20A..**$369**



D1010ATV-R or D100ATV-R

D1010ATV-R MIRAGE 70CM REPEATER AMP.....$589
Continuous duty version of D1010N. Made to match TXA5-70/PA5 10 Watt modules. Rugged large heat sink for repeater or long key down time. 100 Watts p.e.p. or 80 Watts CW. 8.75" H 19" rack panel. T/R switch add $35.
D100ATV-R repeater version gets 90 Watts p.e.p. for 1.5 Watts drive from RTX-70 repeater transmitter (pg 6) or KPA5. 7 Watts drive limitation...**$589**

D100ATVN MIRAGE 1.5 in/>70 WATT OUT AMP.....$369
Designed to match our TX70-1b, TC70-1d, TXA5-RC and KPA5 1.5 Watt transmitters. 7 Watt maximum drive, cannot be used with the 10 Watt modules. All other specs the same as the D1010N.

Remember when comparing prices, ours include UPS surface shipping in cont. USA. **1/96**

HAMS, call (818) 447-4565 now for your complete 10 page catalogue of our ATV products!

:::URGENT::: PRESS RELEASE:::URGENT:::
Hole in Ozone layer caused by Aliens
HAMS HELP REQUIRED TO PROTECT THE WORLD FROM INVASION

(Chicago University Dept of Astronomy and Atmospheric Studies,
Professor Emeritus, Hur Yrneh)

The hole in the ozone layer, as seen in NASA photographs, which exists in the far southern hemisphere, and blamed on industrial pollutants such as Freon and CFC's has actually been caused by aliens. The Government has never explained why industrial pollutants, CFC's and Freon generated in the heavily industrialized northern hemisphere causes a hole in the ozone layer in the southern hemisphere. Simple logic dictates that the ozone depletion should be most noticeable in the immediate vicinity of the pollution agents causing the depletion. If fluorocarbons are the causative agents, being released in the industrialized northern hemisphere, the ozone layer in the northern hemisphere should be more affected than the southern hemisphere. In fact there is no evidence that the northern hemisphere ozone layer has been significantly effected by CFC's. The hole in the ozone layer is in the southern hemisphere that has very little industry or population.

Trans-Equatorial winds do not transfer significant amounts of atmosphere from hemisphere to hemisphere due to the prevailing wind patterns. Thus pollutants tend to stay in the latitudes in which they are created. Even within each hemisphere, there is little interaction between major divisions of latitude. Anyone who visits northern Canada will quickly recognize that the pollution present in the US and clearly seen in the middle latitudes, cannot be seen in the northern latitudes. This is further evidence that pollutants present in the industrialized middle northern latitudes (30-55 degrees north) should be effecting the ozone layer more severely in these latitudes than elsewhere.

Therefore it is illogical that the hole in the ozone layer in the 50-70 degree south latitudes is due to the release of pollutants or CFC's in the northern hemisphere. Yet the most effected portions of the atmosphere are in the least populated and thus least polluted portions of the Earth, over the frozen Antarctic and the vast emptiness of the southern oceans, the Australian desert, New Zealand and the southernmost portions of South America. Coincidentally, these are the same locations of the largest number of UFO sightings.

Tracing the paths of the observed UFO's is difficult because of the small number of tracking stations due to the lack of dry land in these latitudes. Those that could be traced have shown that the areas of ozone depletion coincide with the tracks of UFO's. Reports of UFO's in populated areas have often contained reports of strange odors, gaseous emissions and zigzag flight patterns that are all similar to those used by crop dusting aircraft.

Coupling the UFO flight patterns, depletion of the ozone and known emissions of UFO's we can assume with little doubt that the depletion of the ozone layer is in fact being caused by the UFO's. Aliens are attempting to change our atmosphere so that it is poisonous to Earthlings but similar to the atmosphere in the aliens' own world. The change in atmosphere would destroy many plant species poisonous to aliens, and reduce the Earth's human population through increased cancer and uncontrollable virus'. Simultaneously it would change the atmosphere to allow the aliens to begin to grow their own vegetation, which would support an alien animal population and eventually allow the aliens themselves to live on the changed Earth.

By starting in the least populated places on earth the Aliens can perform most of their work undetected, delivering ship after ship of ozone depleting chemicals, to be sprayed into the atmosphere at high altitude. Working on a long time table, the aliens are able to continue this process over a period of 100 years or more, making it appear that the process is either a natural effect, or to be explained away by alien controlled environmentalists as industrial pollution. It has long been suspected by the Government that environmentalists are in fact aliens in human form, or humans controlled by aliens, to act against our own best interests. People whose sole purpose is to disrupt scientific study by creating an emotional state of unrest and distrust in our own scientists. These same people are also known to be very hostile toward UFO reports and SETI efforts for fear that the UFO missions would attract scientific study and additional global observations would be made. Currently nearly all spy satellites, the only satellites capable of observations from space, are trained on the northern latitudes, leaving vast portions of the southern globe unobserved. There are major military radar stations watching the northern hemisphere, the DEW line and other spy systems, which do not exist in the southern hemisphere. Aliens, could easily detect these radar signals from millions of miles away, easily avoiding detection by flying to the south pole and southern latitudes where these do not exist, sneaking in the back door so to

speak. Free from detection except from the occasional Australian Aborigine and poorly educated people, the UFO's have been carrying out their work in secret for more than five decades, exactly the amount of time since the first UFO was reported over California in 1947 and the amount of time scientists claim the ozone layer has been depleted. It is by no coincidence that the famous carvings of the Nazga plain and the Easter Island statues and other ancient artifacts of UFO sightings are nearly all in the southern hemisphere.

NASA flights in the high thin atmosphere of the Antarctic have shown higher than normal levels of what are elsewhere trace gases and elements in the remainder of the atmosphere. These are no doubt the remnants of the UFO flights, spent fuel waste or decomposed elements from the ozone depleting chemicals or organic waste from the UFO's. It is also believed that the recent massive fish kill off the southern coast of Australia was caused by UFO's that had been seen a few days before, flying between Australia and Tasmania. This may have been an alien test to replace species in the ocean with species from space to start an alien food chain which would not be detected until the schools of alien fish had reached proportions too large to eliminate. This could also explain the rapid reduction in edible fish in many commercial fishing areas and the lack of Krell, on which whales feed, in the open waters of the Pacific ocean. The alien fish, having no natural enemies on Earth, are consuming the Earth species eaten by humans, disrupting the food chain and eventually causing wide spread famine to deplete the human population.

The Government has never been able to explain the high concentrations of these rare elements in the southern atmosphere by any natural means. As usual, the Government's reply to inquires about these findings has resulted in silence or denials. Further, the number of UFO's reported when graphically displayed over time very closely approximates the increase rate of the depletion of the ozone layer. As more UFO's are reported, the size of the ozone hole increases more rapidly.

A memo has recently been received from an anonymous source which describes the operations of a secret group of twelve, called MACC, believed to stand for Midwest Alien Contact Control. This memo details the take over of radio frequencies used for television communication and the elimination of ATV, an advanced form of television which allows individuals to communicate directly from their home to other homes with live television signals. This is more commonly known as interactive television, as each home may interact directly with the other homes with which it communicates. This system has been developed over many decades, even pre-dates FM broadcasting, and has been in test and development in about 6,000 homes in the USA, and in another six to ten thousand homes world-wide. It was the pre-curser for teleconferencing and the latest development, video exchange by computer over phone lines. The take-over of the radio frequencies would prevent the exchange of alien pictures between monitoring stations thus interfering with the defense of the world. TV Guide™ has published three articles on ATV since 1970 and various broadcast stations including NBC News have shown ATV in operation. It is frequently used to relay NASA space shuttle video to the public and schools. The alien memo indicates they would use the frequencies for FM (frequently moronic) communications to frustrate further development of ATV.

From this evidence, the hole in the ozone is clearly an alien plot to change our atmosphere prior to their invasion and conquering of the Earth. Efforts are under way to employ the volunteer services of thousands of ham radio operators to assist in SETI. These hams, world wide are erecting large receiving antennas to use their sensitive receivers in an effort to detect signals from space. The early detection of the UFO transmissions could provide the early warning that could save the Earth and the Human race from the invasion of aliens. Unfortunately, these efforts are being hampered by the same environmentalists and Government officials controlled by the aliens. Help your local ham radio operator save the Earth from destruction. Assist your local ham radio operator to obtain the necessary permits to erect the antennas necessary to detect the invading aliens before it is too late. Around the world, a million ham radio operators, have the opportunity for detection of an alien signal many times that of the Government's meager efforts.

Your local ham radio operator has invested thousands of dollars in the most sensitive equipment available to receive sound and pictures or computer signals. Yet many times the ham is not able to protect you to the best of his ability because of the influence of the aliens controlling Government rules and environmentalists protecting the snail darter and field mice. The choice is yours, protection of mice, or detection of invading aliens. Save yourself and the Earth today. Help your local ham put up his antenna. It's your best protection from an alien invasion. Save the Earth, erect an antenna today! 37 Lirpa Loof, OF9BK Hur Yrneh

FOR SALE

Subject: Fwd: 4Sale: UT-10 (1200 MHz) for TS-790A (fwd)
From: Joe Lanoue <70412.22@compuserve.com>
Subject: 4Sale: UT-10 (1200 MHz) for TS-790A Have brand new-mint condition UT-10 1200 MHz Unit for the TS-790A. Provides 10 watts on LSB, USB, CW, and FM. Triple conversion on LSB, USB, CW and Quadrupple Conversion on FM. Asking $440 (+ship) and will consider other reasonable offers. Would be a good aquisition for the upcoming P3D satellite. Thanks, in advance, for your interest. Leave message or call 203-271-0027. Best Regards....Joe

FT Wayne Hamfest

In a word GREAT!

I was only able to attend Sunday of the two day event. I was most pleasantly surprised at the facility and size of the event. The building has two very large exhibition areas and several very nice meeting rooms. Unlike Dayton, the Ft Wayne hamfest was big, but not crowded, the indoor temperature just right, and both rooms were filled with exhibitors. I would hazard a guess at about 1500 flea tables/commercial vendors. It took me four hours to walk the flea market areas, and I ran out of money about 50% of the way through. The parking and entrance/exit was well organized, something severely lacking at Dayton. Although billed as a hamfest and computer fest, and there was a good deal of computer hardware/software vendors, the ham goodies were in good supply. Enough so that I had no time spotting many items on my wish list. There was a good deal of video gear on hand too including a $2000 character generator for $175. It did color, scrolls, crawls, multi fonts, lots of goodies. Alas I had already run out of bucks when I found it. Many good cameras and recorders were on sale. Rainbow kits had several of the micro cameras good for R/C and other uses. Prices seemed reasonable. Food was limited to a single vendor, and the usual convention center prices, but the line was short and the food hot. Folks should seriously consider the Ft Wayne hamfest an alternative to Dayton. Maybe we could move the ATV gathering here and avoid the high cost of Dayton? Ft Wayne is certainly on my MUST GO TO list for next year. 73 Henry KB9FO

NO DAYTON 96

Because of the high cost (over $1600) to "do" Dayton, the poor facilities, and the change in date that throws attendance into question, ATVQ will NOT "do" Dayton in 96. There will be no ATV meeting at the Holiday Inn and we will NOT have a booth. We would like to pick an alternative hamfest to have a big ATV meeting each year. The table is open to suggestions. Perhaps one of the clubs would like to start it, say in Houston, Dallas, Orlando, Miami, LA, name it. Besides the unpredictable weather, hardly pleasant, they moved the date into May. Whether the high cost of hotel/motel rooms, meeting room, booth, food, and poor facilities at HARA (the bathrooms are awful, even the vendors is in sad need of repairs, poor food service especially for vendors, always too hot or too cold, stuffy/smokey from the BBQ pits, too crowded in the aisles, and someone always parks their truck taking up 406 parking spaces instead of 1-2., etc) will impact the move I don't know. Rather than take a chance we will pass this year and see how it develops. If Dayton 96 goes well, we will return in 97.

Please visit the ATV vendors who will also be handling ATVQ products at the convention. This year I get to visit the flea market! 73 Henry KB9FO

INDIANA SEEKS INFO

I am continuing to gather frequency-use data, with regards to "mode useage" (29 MHz throught 10 GHz) for the purposes of "painting" a representative picture of frequency utilization in the State of Indiana and its surrounding neighbors. i. e. packet, atv, satellite, FM simplex, SSB, CW, etc. Since packet coordinators are just as viable and recognized as any other coordinating body the Indiana Repeater Council wishes to offer its resources and collective energy to create a mode user summit whereby all claimed frequency useage is explicitly spelled out by all coordinators, the pieces of the puzzle are laid out on the table and then, hopefully, we can work out THE representative bandplans and practice the art of compromise where needed. Cpntact Jim KK9T (kk9t@aol.com) or Cince KA8CSH (vev@mail.msen.com). Your immediate pro and con response is requested.

ATTENTION CELLFONE MAVENS

TECH SPECIAL... 14 Motorola Flipfones. Most are complete less batteries. Many can be resurrected into working fones. Also included is a box full of parts mostly used but, serviceable....**$600.00 LOT**

CELLFONE DUMP

$39.00 ea.

Name brand cell-phones Uniden, Erricsson GE, Audiovox, OKI, Fujitsu, Motorola, Mitsubishi, NEC, Technophone, Diamond Tel, etc. etc.

Working tested phones	$39.00
AS-IS untested complete phones	$19.00
Replacement parts (used functional) (Specify Exact Model)	
Handsets ONLY	$19.00
Transceiver ONLY	$19.00
Cable ONLY	$19.00
Cradle Only	$5.00

Motorola Maxar 50 system 469/464.650 074 DPL ready for service.
D24JAA6300 Maxar 50 2fr DPL@ $125.00
Maxar L44TRB6300 BAse 469.464.650 DPL 074.....$175.00 less p/s

Motran UHF(450-470) 250W repeater B94MDB3100.....$950.00

Motorola Micor C64RCB3100 100W rerepeater 450-470 Mhz. Multiuser with duplexer in 5 ft cabinet condx vg. **$2500.00**

GE - PE PARTS DUMP

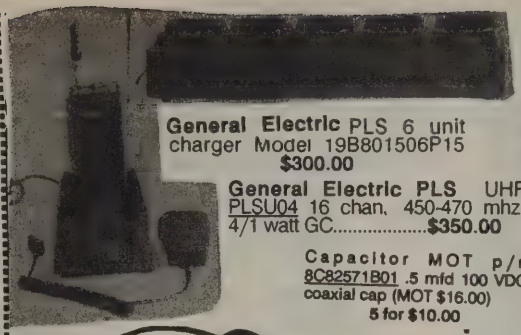
TECHNICIAN SPECIAL
General Electric PE/PY parts, radios,test fixtures, mike cables, chargers,battery tester, etc.Entire lot including manuals.....**$175.00**

MASTR II PARTS
BEEN TRYING TO FIX MASTR II MOBILES LATELY AND FINDING THE PARTS MORE EXPENSIVE THAN A NEW RADIO? TRY US. WE HAVE MASTR II PARTS AT REASONABLE PRICES.

MOTOROLA SYNTOR VHF T73VBJ 110W.Drawers Only less accessories $200. with accessories $325.00

GE MAstr II UHF MC75 UHF Drawers ONLY...$175.00 with accessories $199.00

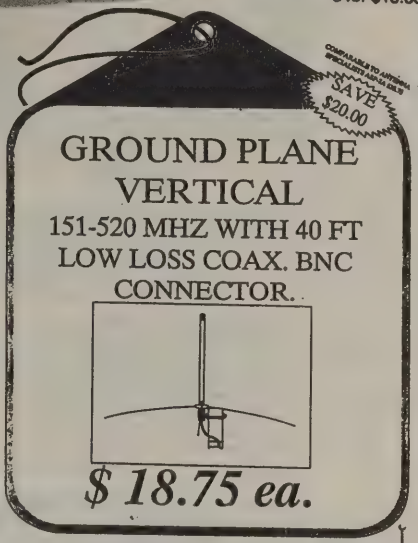
MOTOROLA SPIRIT PAGERS 163.250 mhz. Hospital paging freq. Just removed from service, VGC. with charger less reeds.....**$29.00**



General Electric PLS 6 unit charger Model 19B801506P15 **$300.00**

General Electric PLS UHF PLSU04 16 chan. 450-470 mhz. 4/1 watt GC.....**$350.00**

Capacitor MOT p/n 8C82571B01 .5 mfd 100 VDC coaxial cap (MOT $16.00) **5 for $10.00**



GROUND PLANE ANTENNA KIT
Originally mfgd for a small portable paging system. Similar to Antenna Specialists ASP-7A. Tuneable from approx 151 to 520 Mhz. Kit complete with 40 ft cable, hardware. Ready to install. Also makes excellent monitor antenna.(4#).....**$18.75 ea**

db Products DB 732 800-960 Mhz
3 db roof mount 3/4" brand new boxed. UHF crimp conn..... **$22.00**

Weird powers
Powertec model 23E48-S452 48 vdc in 120 vac 2.5 A out .....**$ 25.00**

Power Supplies (48 VDC in)
LH Research DMX33-E0634 & DMX33-E1243. MOT p/n 01-82990M03. 44-60 VDC in - V1 = 5V@50A, V2 = 12V@10A, V3 = 12V@9A out. Probably for Microwave or telephone installations. Very good condx **$25.00**

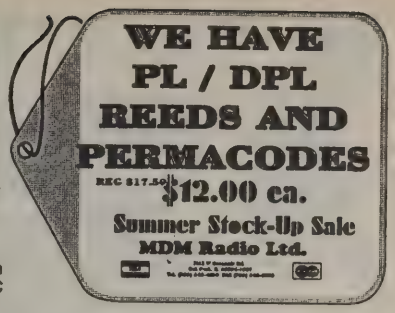
PAGERS FOR PARTS
PAGECOM/DIRECTOR
create something unique or canabalize for parts.99% work but sold asis. Speaker 16 ohm 2 in., VOLUME ON/OFF, 35,43 ,170,450,500 mhz rcvr no housing some parts n.i.a.....**$5.00 ea.** (some manuals available@$5.00)

SPIRIT LO,HI, UHF
Chassis only NO HOUSINGS, tone/voice asis for parts 99% work. experiment, use for radio control wt 2 oz.....**$5.00**

PAGEBOY II
LOW, HI, UHF Tone only & tone/voice ;CAC,DNC,FNC's most working but, sold asis for parts. Experiment, become a pager maven, THE CLIP ALONE IS WORTH THE PRICE. build an empire ONLY .....**$5.00 ea.**

TERMS

$25.00 Minimum Order. All items are limited quantities. First come First served. Equipment is checked before shipment. 10 day return privilege with prior notification. Unless otherwise specified, mobile accessories are included. Shipping charges will be added. Shipment is F.O.B. Oak Park, Il. UPS surface rates. Handling charge $3.00 per order if less than the minimum. Truck freight, air shipments, or other special shipping methods at prevailing rates. Appropriate sales tax will be collected. C.O.D. shipments will be CASH or CERTIFIED CHECK unless other arrangements approved by our office in advance. Returned checks subject to $25.00 handling charge. Inquiries as to above terms call (708)848-4210 weekdays only 9-5 Central Time.



Speakers GE MAstr Pro
8 ohm speakers from MAstr pro mobiles fair to good condx. make lots noise..... **$ 10.00**

Mitrek System 90 heads
Mitrek 4 freq ACM with MDC600 encoder in housing. GC.....**$29.00**

SPIRIT PAGERS
DELIVERED ON YOUR FREQUENCY AND CODE*

Excellent for sustained group service in such areas as Civil Defense, Volunteer Fire and Police, Amateur Radio, Civil Air Patrol, etc. These pagers come complete with charger, on the air ready for service. Most freq ranges available.

$89 ea.

*Codes subject to availability. Most codes are in stock. Price does not include shipping.

(708) 848-4210
MDM Radio, Ltd.
7112 W ROOSEVELT RD
OAK PARK, IL 60304

Motorola Motrac 4 freq heads
75 Motrac 4 freq heads. use with Motrac,Mocom 70 or Mitrek. Stick one under the dash of your '63 chevy and play highway patrol. GC
$3.00 ea

(708)848-4210

BASE & FORE for 4
Uniden 800 Mhz LTR compatible system. 4 Mobiles;3 @ FMS850T, 1 @ FMS810TS and FMS810TS base with power supply, YAGI ant cables, mikes, ready to install. **$ 1495.00**

CABINETRY

2 SCHROFF 6' OPEN RACKS, NEW.....**$150 ea.**

ALSO, A LARGE SELECTION OF G.E., RCA, MOT, & EFJ CABINETS IS AVAILABLE. VARIOUS SIZES...TOO MUCH TO LIST HERE. CALL WITH YOUR NEEDS.

VISA

MasterCard

NOTICE

The equipment offered herein whether new, used, or reconditioned is sold as used equipment. The equipment may be new in factory boxed condition or have been repaired or reconditioned using parts from the original manufacturer or from another source or from other equipment. None of the equipment herein offered is warranted by it's original manufacturer and nothing is to be construed that this is an original product from the original manufacturer. Any warranty claims should be directed to our office in writing with appropriate documentation showing purchase date, delivery date and reason for such claim.

In addition any trade names, trademarks, and logos, are the property of the manufacturers and any references to such are references only for identification purposes and does not imply any relationship between this firm and those specific manufacturers.

In addition, batteries and antennas on any used equipment are NOT warranteeable items. They are AS-IS regardless of warranty offered on used equipment.

SEPT 1995

PARTIAL INVENTORY OF EQUIPMENT 1 SEPT 95

PAGERS

1	A01BGB4661 BPR2000 pager 35.46mc	35.00
2	A03BGC5661 BPR2000 pgr 152.24 vib	45.00
1	A03BGC4661 BPR2000 pgr 152.24	40.00
6	A05JRC5361 Bravo 931.9375 disp/VIB	65.00
99	A03JVC2468 SPIRIT T/V 163.250 W/CHR	29.00
40	A03EAC2468 PAGECOM 157.74 T/Vles chrg	10.00
1	A03BGC2468 BPR2000 Tn/Vc 153.71	65.00
3	A04CJC7468AA KEYNOTE 485 MC	65.00
3	A04EBB2468 PR3000 462.5 T/V	65.00
3	A03TNC2468 PAGEBOY III T/V W/CHR VHF	35.00
6	A04FNC2468 PAGEBOY II UHF W/CHR	25.00
6	A03FNC2468 PAGEBOY II VHF W/CHR	25.00

LOW BAND

1	CT54AAU13 GE MVP 30-36 PL w/mike	99.00
2	966L16 Standard 30-36 Mhz 75w 16fr pl	159.00
5	RT74FCU23 GE Execll 36-42 110w pl 4f	99.00
4	70TT50 Aerocom 7 ??W PL 36-42mhz w/acs	49.00
1	C71RTB1103 110w Micor 42-50 cs	950.00
2	M01CNB1000 Mot alert mon 37.1 cs	59.00
2	B91RCB1125 MICOR BASE 250W 42-50	2750.00
3	Midland 70-056C 40-54 pl 100W TRNK	250.00
3	Midland 70-050C 40-54 csq 50W	199.00

VHF

6	H33LCB1144 HT440 4fr 5w VHF csq	120.00
1	6085 EFJ 8fr synth 25w w/mike,cbl	199.00
1	CT56FAS66 GE MVP 30w 4fr VHF CS noaccs	79.00
4	866L Standard VHF 35w 4fr csq ls brkt	99.00
2	866L16 Standard VHF 16 fr cs	129.00
1	H43SSU3170 MX330S 8F synth VHF 5w	199.00
2	D33TRA6000 Maxar 25w DPL VHF QKcal	119.00
6	T43JJA1000 Mitrek VHF 40w CS less acs	99.00
4	C73RCB1106 110w Micor rptr 162-174mc	1750.00
2	6055 EFJ 25w 8FR synth VHF w/accs	179.00
11	T73VBJ7204BK Syntor X 110w VHF no acs	220.00
3	CS-0520HD PORT W CHR 151.835 PL	135.00

800+ MHz

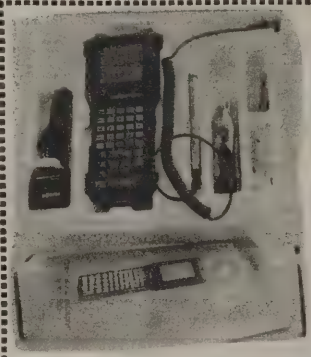
3	8855 EFJ 800 trnk splitmnt 35w w/aCS	169.00
4	8700 EFJ 800 Mhz trunked 15w w/mike	159.00
1	8710 EFJ 800 Mhz trnked 15w 4 sys w/mike	199.00
3	TMX8615 GE 800 Mhz trnkd w/mike	259.00
1	TPX8403 GE 800 mc trkport chrg/spkrmike	329.00
2	D35MWA5GB7AK Maxtrac800 15w w/accs	355.00
5	D35MQA5GB5 Maxtrc800 15w 2sys 2 sub	335.00
2	CT45AAU92B GE 800 Mc 2fPL conv 25w	79.00
7	D35TLA5G00 Mostar 800 trnkd 15w	129.00
10	D35TDA5G00 Traxar 800 Trnkd 15w	119.00
1	H25JBF51B2AN MTX810 800 TT 3x2 w/chr	495.00
1	H25JBK5170BN MTX800 3x2 TTw/chr	495.00
1	D35MQA5GB4 Maxtrac 800 2 sys 2 sub 15w	335.00
3	FTS250S Uniden 800 Convntl 35w prgmbl	129.00
1	D37KMA7JA5DK Spectra 900 Convtnl	399.00
3	H01WCC4DB3AN MTX9000 900 trnk w/chg	650.00
10	M2STL4HOXX GE 35w G-Marc-v 800 mc asis	20.00
8	GE 800 Classic/Corona noacs asis	20.00
10	8000 MOT 'brick'cellfone w/ant,chrg only	50.00

UHF

3	U54HHT3000 Motrac 442.6 PL les accs	49.00
4	SP2850 maxon 10 ch port UHF 4w w/chrg	295.00
6	H44QPU7120 Mot P100 2fr 4W UHF	250.00
14	PLSU04 GE PLS 16CH 4W 450-470	350.00
10	D34TRA3300 Maxar 3fr,2 pl UHF 25w	135.00
1	70-525B Midland 25w xtal UHF PL 10fr	129.00
7	D24JAA6000 Maxar 50 10w UHF DPL	129.00
6	D24TRA3000 Maxar UHF 10w PL	99.00
3	CM-4020 MAXON 25W 4F	99.00
1	C34MSB3100 12w Repeater 442.6 mc pl	325.00
6	TK-801S Kenwood 6ch 35w PL w.mike	179.00
3	766L Standard UHF 30w PL complete	159.00
2	6065 EFJ uhf 8fr w/mike synth	219.00
2	C64MDB3106AT rptr 470-494 mc 75w pl	750.00
1	C64RCB3100 MICOR Rptr 450-470	2500.00
1	B94MDB3100 MOTRAN 250W BASE RPTR	900.00
6	Motr Moden30/100 pager encoder	35.00
6	GE base PS 12v/6A good condx	49.00
6	MOT HT90 2F UHF PL	130.00
5	EFJ PPL6060 ASIS need work	49.00
4	MC75AAU89 Mastrll 470-494 pl no accs	125.00

MISC STUFF

15	NLN7646 Rapid charger HT90/440	45.00
12	NTN5538 Rapid charger p200/ht600/MTX	45.00
20	NTN4633 Rapid charger HT600/P200/MTX	45.00
1	BPN1009 Pow supply Centracom II	750.00
1	TPN1222 PWR Sply MSF 110/220 50hz	129.00
999	OLD Motorola Manuals antiques ea.	5.00
12	L1474A Mot Command line tone remote 2f	129.00
8	C-510 Cetec-Vega 2F Tone remote	79.00
24	ANT7 Grnd Plane 150-470 Mhz New	18.75
3	T-1601 MOT DC REMOTE CONS	165.00
2	T-1604 Mot Tone remote console w/mike	165.00
2	cabinet 4 ft h X 14d X 22w (RCA) 19in rail	150.00
1	cabinet Mot 5ft wxprf vgc	300.00
2	Dictaphone 1100 message repeaters	100.00



Bar Code Readers

TELXON PTC-755 Portable tele-transaction computer. Battery powered with charger and barcode reader wand. NO SOFTWARE. Units are new in boxes. displays data on 16 line scrolling LCD. Late 80's technology. Play grocery store manager. AS SHOWN....**$49.00**

3 HP 92915A barcode readers condx unknown but, less ps.....**$35.00**

1 Intermec 9326 less ps.....**35.00**

2 Motorola NTN4506 Bar Code Wand ..... **$ 50.00**

BATTERY KIT
G.E. T4TP02 rechargeable sealed lead-acid 12V 1.9AH. Originally mfgd for bag fone cellfonz. NEW BOXED with charger, charging circuit and complete instructions. Great standby emergency power source.....**$15.00**

Novatel BCNA-AP 12V 2.4 AH Recvhargeable Lead-Acid BAttery originally mfgd for Cell Bag fonz. New with charger and Cig (F) Plug. Ideal for portable radio, Camcorder, etc. **$15.00**

VISA MasterCard

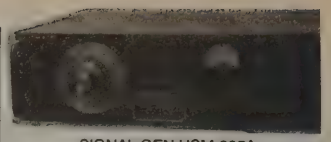
IF YOU DON'T SEE IT HERE..CALL US!!

(708) 848-4210

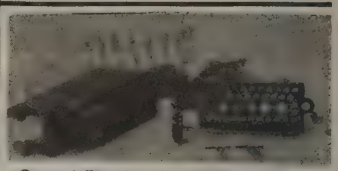
(708) 848-4210

WANTED - Service manual for NEUTEC SM-1645L Synth low band dash mount. or someone who knows them to repair mine. Contact TED @ MDM

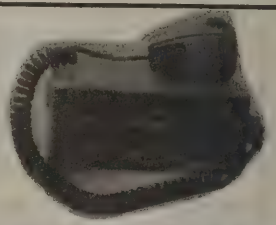
FUJITSU-TEN FTM40-3092H 30W 16 CH programmable, with programmable PL and scan. Clean reliable.....**$250.00**
ADD $40 for programming.



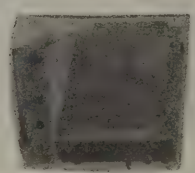
SIGNAL GEN USM-205A
10 hz to 10 mhz in 6 bands. 50 ohm (200 mw)/600 ohm (16 mw) output, 3.16 V.; attenuator 90 db 10 step; 115/230 vac 50-400 hz. stability 2%/mon.accuracy ±3% VGC..**$99.00**



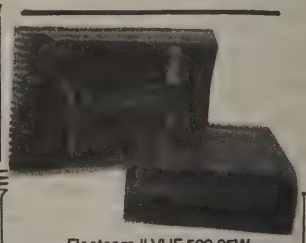
General Electric p/n 19D900447G8 main connector for Delta and Ranger series radios.(GE$$25.00)....**$7.00**



General Electric Custom MVP UHF (450-470 mhz) CT35AAU88 with mike and bracket, single freq/ chan grd.....**$129.00**
CT45AAG88 450-470 mhz/ 4 freq., chan gard, with mike , bracket.....**$159.00**
Power supply with desk mike for above **$64.00**
no power cables available for above



General Electric Voter Comparator receiver modules p/n 19D413994G1 (GE$$370.00).... **$25.00**

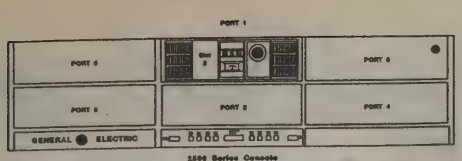


Fleetcom II VHF 529 25W
Johnson model 529 25 Watt VHF 150-174 Mhz. 2 freq. Carr. Squelch Less accessories. Transceiver ONLY good condx. Buy 2 and build a repeater. Excellent for packet, data, or link service. Tested with schumatic diaphram.

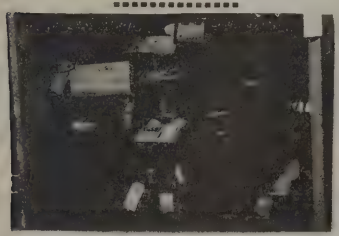
$39.00

896-940 MHz
ELEVATED FEED ANTENNA
New packaged merchandise at 33 to 40 % of List price. quantity pricing available)

Maxrad MUF9043 3db 125W ($69.50) **$19.00** →
Maxrad MUF9105 5db 125W ← ($76.50) **$29.00**

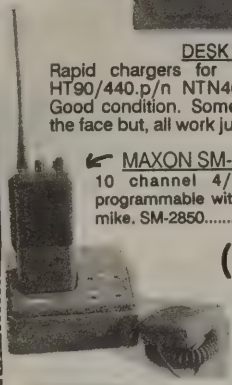


General Electric 2500 series Console parts. Main console chassis, cards, card extenders, power supply. Pickup ONLY.....$200.00



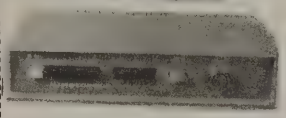
NON-SYNTHESIZED DASH MOUNT INVENTORY REDUCTION PROGRAM (how's that for creative copy writing?) Perfect for that 1 channel application that doesn't require a $500 synthesized programmable 99 channel radio. Also many of those mentioned are direct FM. Perfect for amateur or commercial packet applications. Cheap enuf to use as monitors. examples Maxar, Moxy, [illegible] Phoenix, MVP, TACTEC 300, MAXON, Regency, Wilson, Midland, Etc.
$79.00 each

DESK CHARGERS
Rapid chargers for HT600/P200/MTX etc and HT90/440.p/n NTN4633, NTN5538, NLN7646 Good condition. Some have numbers etched into the face but, all work just fine....**$45.00 each**



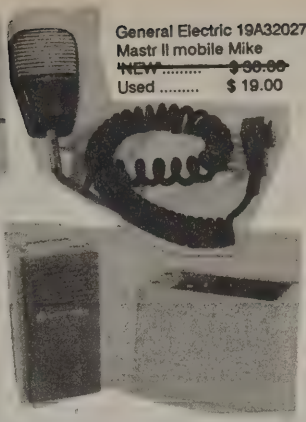
MAXON SM-2850 10 CH UHF
10 channel 4/1 W 450-475 mhz programmable with charger and speaker mike. SM-2850.....$300.00

(708) 848 4210



R-1015A Portable Video Bot/Dar Generator. With manual. requires 2-9 volt bats. Germinates composite video bot and dar patterns for camera and monitor alignment in b & w CCTV. Original cost $180 mfd by MOT. R-1015A.....~~$60.00~~ 49.00
6 Left

Motorola METRX tone ONLY pager 152.840 NEW Boxed never in service many with original AA battery. Model no A03BHC1668B binary digital format dual call.....brandly NEW.....$5.00 ea.



General Electric 19A320270G1
Mastr II mobile Mike
~~NEW.....$ 30.00~~
Used ..... $ 19.00

Motorola Minitor A03EAC1712 VHF pager and monitor 33.78, 33.82, 46.2 154.070, 154.4, 153.89, 453.5 mhz VGC with charger and filters. These frequencies ONLY. Limited qty
$99.00

PORTABLE TECHNICIAN SPECIAL
Motorola MX300 series radios VHF, UHF, 800. Parts some new some not. some working some not. channel elements, whatever (but not PL filters) Everything the repair shop might require in repairing MX's (and they are still out there) LOT p/n MXL
$300.00

Motorola Speaker/Mike
(new cond)
NMN6049 HT220 universal **$35.00**

NMN6082 MT500 **35.00**

TOOLS
Used and a little rusty but, serviceable stainless steel tweezers and dental type picks. A must for PC work. Some may require a little dressing with a file or grinding wheel and a little steel wool to clean them up.....**$.50 ea**

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We have a ton of trunk mount radio drawers which are still serviceable if for nothing other than spare parts. These are complete radios mostly removed from service, working units with elements. We must clear off the shelves for newly arriving equipment so we're gonna take our drawers down... off the shelves and sell them reeeeeal cheeeeeeep.
(ha..thought it was gonna be something wierd didn't ya!)

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MOTRAC ANY BAND/POWER	$20.00
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MITREK BELOW 110w ANY BAND	99.00
MITREK 110W ANY BAND	150.00
MASTRPRO ANY BAND/POWER	20.00
MASTR EXEC ANY BAND POWER	30.00
MASTR EXEC II ANYBAND/PWR	79.00
MASTR II LOW/VHF ANY POWER	75.00
MASTR II UHF	150.00
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ANY AEROTRON	20.00
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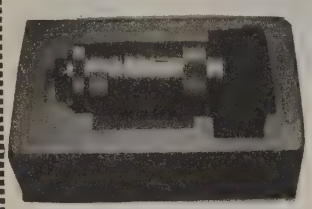
Above are drawers only, no housing, no accessories. Accessories available at extra cost. RED TAG items 33% Off.

Bird dual line section p/n 4522-002-8 accepts 2 elements for forward and reflected power measurement simultaneously, at the same time and together. With N - QF (1M,1F) connectors NEW.....**$129.00**



PANASONIC Zoom Lens Model H5-14C, Fujinon c mount, 14-70 mm f2, Brand New Boxed
~~$100.00~~ $50.00 5 Left

MOTOROLA HT220 PARTS

NLD6344 VHF 5W AMPS NEW	$25.00
NLE6222 UHF 4W AMPS NEW	$25.00
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NLN8220 2 TONE DECODERS	$5.00

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148-160 MHZ RCVR 5.5 X 5.5 X 4.5 IN. ON 154.46375 Mhz. Originally used with electric water heaters and the like for load control. Dual conversion with discriminator audio output , tie anything you want to it. Rx of proper digital code opens relay closing circuit for approx 6-8 mins. Substitute PL or TTone decoder for your own control requirements. 24vdc,120/240 vac available.....**$49.00**

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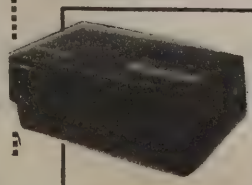
Motorola A03XTC2468 DIRECTOR II VHF tone/voice pager with charger on 157.740 mhz less filters vgc $125.00
Motorola A03ZYC2468 Director II SV VHF (157.740)tone/voice with voice storage & charger. vgc $135.00

PAGECOM VHF - 157.74 T/V
Motorola PAGECOM vhf tone/voice pager less reeds and charger gc.$10.00

GARAGE SALE @ MDM OCTOBER 7,14,21,28



AMBICO VISION MATES
Here is a neat device for keeping kids from sitting too close to the TV set. It connects to the antenna cable and automatically shuts off the video & audio when the infrared sensor detects a person sitting too close to the TV set. Has 2 adjustments; one for distance and one for time lag before shutting the TV down. Originally sold nationwide at $69.95...We sold 'em thru national magazine ads at $49.95. Now we have a bunch left over. All units are brand new and perfect, but the boxes are bunged-up from handling by humanoid gorillas. Try one...they really work.

$10.00ea.

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Generates cold and hot on opposite sides when energized. Use to cool hot stuff like 486 microprocessor or your new Pentium. Temp range -150C to +80C. Spec sheet included.

CP 1.4-71-045	CP2-7-06L
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8.6VDC 8.5A	1VDC 14A
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Conversion factors you should be aware of.
To convert from (BRIT) FIRKINS to (US) FIRKINS Multiply by 1.2009

To convert from STILBS to LAMBERTS multiply by 3.14159

October 12, 2002 will be on a Thursday.

We hope this information will make your workday more pleasant and clarify any questions in handling this data. MDM Radio Ltd. is not responsible for ancillary or actual damages caused by the use of the above information.

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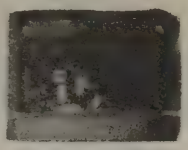

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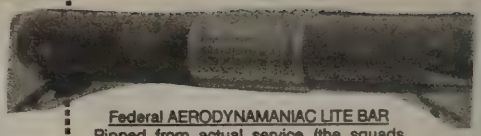
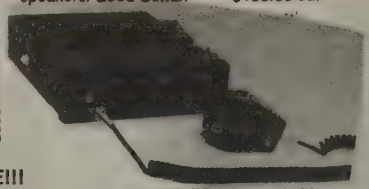


Federal AERODYNAMANIAC LITE BAR

Ripped from actual service (the squads were parked in a dunkin' donuts lot) Red, Blue domes with alley lites. Sorry no siren speakers. Good Condx $100.00 ea.



800 Mhz LTR EF Johnson 8700

Johnson 800 Mhz trunked dash mount 15 watt. Clean ready for work. with Mike, bracket, & Speaker.....$189.00

GE Base supply

General Electric 13.6 vdc 6 Amp power supply VGC. Run most radios up to 25 watts.

$49.00

CALENDAR OF SIGNIFICANT EVENTS

October 1995

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1 NOTHING IMPORTANT	2 NOTHING IMPORTANT	3 NOTHING IMPORTANT	4 YOM KIPPUR	5 NOTHING IMPORTANT	6 HIT SAVINGS ACCOUNT	7 MDM GARAGE SALE
8 NOTHING IMPORTANT	9 COLUMBUS DAY SUCCOTH	10 NOTHING IMPORTANT	11 NOTHING IMPORTANT	12 COLUMBUS DAY (TRUE)	13 HIT CHECKING ACCOUNT	14 MDM GARAGE SALE
15 NOTHING IMPORTANT	16 NOTHING IMPORTANT	17 SIMCHAT TORAH	18 NOTHING IMPORTANT	19 NOTHING IMPORTANT	20 HIT ATM MACHINE	21 MDM GARAGE SALE
22 NOTHING IMPORTANT	23 NOTHING IMPORTANT	24 NOTHING IMPORTANT	25 NOTHING IMPORTANT	26 NOTHING IMPORTANT	27 HIT A 711 STORE	28 MDM GARAGE SALE
29 NOTHING IMPORTANT	30 NOTHING IMPORTANT	31 HALLOWEEN				

WHAT!!! NO GARAGE SALE!!!

RIGHT...NO GARAGE SALE.

We have so much stuff crammed into this building that we can't move around to organize it for the annual Garage Sale.

SOOOOOOO...

EVERY SATURDAY in OCTOBER from 10 AM to 4 PM...guess what?...RIGHT!...GARAGE SALE!!! We are doing this so that more of you can adjust your schedule and get in here and find that treasure you've been looking for. If it works out we'll probably do it more often. So mark you calendar, set your ROLEX. **OCTOBER 7, 14, 21, 28 GARAGE SALE @ MDM**

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FM VIDEO PRE-EMPHASIS

Additional commentary by J. R. Mathison, PO Box 87, Sheridan, WY 82801

I would like to make some comments concerning the article To Preemphasize or Not in Summer 1995 ATVQ by Bryan Davis K3AAF.

The pre-emphasis and de-emphasis networks shown on your figures 7, 8, & 9 are the same as CCIR Recommendation 405-1 which has been in use for terrestrial video FM microwave radio systems for many years. The CCIR 405-1 Standard should be adequate for Amateur FM TV applications.

Your figure 7 shows the 75 ohm video input termination being switched OUT when the pre_emphasis network is being switched IN. The bridged T network must be terminated in 75 ohms for proper operation. It is this loss of termination which causes a higher FM deviation when switching the 2.079 Mhz test tone from FLAT to PRE-EMPHASIS. The preemphasis network has no gain for the sine wave. It is the loss of termination reflected back to the signal generator which causes higher network output and consequent higher FM deviation. A proper termination will cause the test tone to be attenuated approximately 10 percent and also will change the results of your figures 2, 4, & 6 as the levels of video will also be incorrect.

I would guess that you probably used the multiburst test signal in your spectrum analyzer displays in figures 3 through 6. The multiburst signal does not occur naturally in video pictures. A better choice might be the pulse & bar with chroma modulated 12.5 T sine squared pulse test signal. The Model 147 signal generator must also strapped for 125 nanosecond rise and fall times for the pulse & bar. The CCIR 405-1 emphasis networks were designed around the 125 nanosecond rise and fall times from blanking to white.

Required RF bandwidth can not be directly determined by using a static video test signal or sine wave because they are not capable of showing the dynamic change in DC component levels as average picture levels change from a minimum at blanking to a maximum at white. This change in DC component also modulates the RF carrier as it 'effectively' changes the RF carrier center frequency.

See my articles Comments on Commercial FM TV Standards in ATVQ -Winter 1994 and FM Video Deviation in ATVQ - Spring 1994 for more information on this subject.

Your conclusion that pre-emphasized video requires more bandwidth than FLAT is quite contrary to historical conclusions which have resulted in pre-emphasis being universally accepted by manufacturers of commercial FM TV microwave radio systems. My advisors tell me that the bandwidth reduction due to the use of pre-emphasis is fully as important as its use for noise reduction

Having said all this, I would like to compliment you for writing about frequency modulation by video. It is a subject not well understood by most of us and there are lots of misconceptions even believed by the experts. For example, The crossover frequency of the above emphasis networks is approximately 400 Khz but most experts will tell you that it is 761 Khz - which has a much different significance. We need more articles on the technical aspects of FM TV modulation and you have the credentials to write them and the test equipment to derive the illustrations.

Sincerely, J. R. (Bud) Mathison WB9OQM

Here are some of the notes that pass across my computer screen from America ONline.

ATVQ on America online

REACH ATVQ VIA E-MAIL from any computer service : ATVQ @AOL.COM.

Subject: RE: ATV ID

From: doug@supernet.net Reply-to:atv@exchange.tlh.fl.us

I would like to know more about the rack mount switcher. So far there are about 6 hams in these parts that are interested in ATV. Kimo, WD4HWJ, is in the final touches for our ATV repeater. Next is the site location. Most of them have had too many UHF systems around so we have had to scrap them. We do have another possible site with only a 6 M remote base so we'll see. I'll be using simplex for the shuttle on this go around. I hate to tie up my satellite for the complete mission but it looks that is what is going to happen. Maybe one day I can get a second dish pointed at S2 since I already have a second receiver...{sigh} ...DOUG doug@exchange.tlh.fl.us * 3123 louise st * tallahassee fl 32304-2724 (904) 575-7119 voice * (904) 575-6577 fax * (904) 575-7900 bbs

There is an ATVer in my area who uses a rack mounted 10-channel TV signal switcher which was originally professionally designed for a security guard shack. As it switches automatically, its circuitry compares sync pulses from one channel to the next so that it doesn't loose sync while switching. He connected the first 9 channels together, but connected the last channel to his computer ID signal. You see his camera signal as it goes through the first 9 channels, then you see his ID appear when it goes to the 10th channel. I think he still has a bunch of these he is selling for $100 each. I can contact him to see if he has any left if anyone is interested. Tom Carter KC6TNB

Hi Tom, I'm assuming these units are capable of color and can the channels be switched manually? If it can I may be interested. Thanks, Ed N6KKH

From: atvq@aol.com

For many years I used a cast off Motorola security camera sequencer switcher. It had 10 inputs and 1 output. Front panel switches allowed you to lock out any source, or lock on any source, or scan all active (selected) sources. Put it on the repeater and let it scan between wx radar, ID and other stuff. Guys locally called it Hentv (Henry's TV). Haven't seen it in a while, either still packed or lost. The are all "passive" to color/b&w usually just a transistor switch ing circuit with bias on/off, some now are 4066 IC switches U can build a simple one using some 4066 IC's driven b 2N2222 and a 1 shot or flip flop clock or ne555 clock. Se the time for the amount of delay you want between sources The one I had used an R/C reflex circuit and a pot to adjus time delay from .3 to 10 seconds per source. (source volt age charges capacitor through resistor, when reaches bia point of transistor switch, transistor comes on and discharge cap through resistor/diode). best luck 73 Henry

Chicago ATV Repeater

From: Andy985

Didn't know Chicago had an ATV repeater. Have old AT equipment with a 439.25 xmit xtal, but poor antenna. Is th repeater active now? When will be active? Like to try.. thanks.

Reply: Chicago has 3 systems, AM and FM modes on all th bands.

ATV @ 900 MHz with 'Rabbit'

From: N5JDB Jim

Hello All -Wonder if anyone has any experience using a 'Rabbit' or other wireless TV distribution system, with o without extra amplification, to work 900 MHz ATV? I'v heard of it being done, but don't know anyone personall who's had any experience with it. I've done some interest ing ATV stuff on 70 cm, including mobile operation, an would be glad to compare notes with anyone interested. Tn 73, -Jim

From: Bruce N0CV

Hi Jim, 3 or 4 ATV'ers here in the Twin Cities are usin rabbits for portable ATV operation. Some have added "bricks". Contact Rollie KB0GL on AOL for details. 73's Bruce From: John H Davis I'm wondering if anyone ha had experience with the Gemini VC-5000 version of the rab

bit, which apparently is crystal controlled. I don't have one of my own to play with yet, but the antenna seems to be mounted a bit differently (maybe not quite as easy to add an RF output jack to). Can anyone shed light on this? Thanks.

Hi Jim, Several of the guys here have used the rabbits. I have one ...but haven't tried an outside antenna. Several of our ATV club have added bricks. Others have built the rabbit into lookie-talkie configurations. The price is right! Bruce-N0CV

HELP FOR ATV RPT

From: Dave Muller

Hello All: After the untimely death of Frank Donahue, W3QNI, I inherited my club's ATV repeater. Just before Frank passed away, the repeater was hit by lightening. I have managed to get the system back on the air, but I also made some mod's that Frank and I had discussed. We were using a PC Electronics crystal downconverter with a CH. 3 output. When I rebuilt the units, I re-crystalled the downconverter for a 45 MHz IF to eliminate the TV tuner. However, 90% of our receiver's gain was in the TV tuner unit. I now need to make up probably 60 or 70 dB of gain at 45 MHz. I built an amp with a Motorola MC1350 ic, but for some reason it doesn't work like I expected. What I would like is any schematics and info for an IF amp. I ruled out MMIC's because of their wide band gain (not what I want for a repeater HI), but if I could find a source of SAW filters, then MMICs would be a lot easier. Any help would be appreciated. Dave Mueller AA3EE Steel City ARC W3KWH.

DIGITAL ATV PROSPECTS

From: Bruce N0CV

The Minnesota ATV Club want ideas on the prospects for a digital ATV fast-scan system. What parameters need to be fixed ...and what the bandwidth might be ...are things we know little about. Are the schemes used for "Quicktime" movies applicable to a ham radio system? We welcome input from all. 73's, Bruce-N0CV

UNDER WATER ATV

From: Philip.S.Smith@jpl.nasa.gov

Message From: <steve@media.mit.edu> at Internet

some of the guys around here have played with toy subs in swimming pools and have simply used 434 MHz exciter boards (<100 milliwatts) to produce viewable pix using simple quarterwave antennas inside the plastic hull. the problems had to do with multipath from the walls of the pool, plumbing fixtures, etc. probably a superior approach would be fm modulation and circular polarization. of course, if you are a scale modeling fanatic, you might be able to duplicate the tracking dishes used on some prototype craft and really optimize the transmission path.

Subject: SCROLLING MESSAGES

From: thomas_carter@logitech.com reply-to: atv@exchange.tlh.fl.us

I have an old program called STYPE.COM. It is just a simple DOS program which replaces the DOS "TYPE" command. Similarly to the TYPE command, you just type: STYPE xyz.TXT You can control the speed at which the text scrolls, even to a complete stop. However, it does not allow you to change fonts. You could probably type MODE 40 to change your display to 40 column to make the text larger. If you want the file, let me know. Tom Carter KC6TNB

Hello fellow ATV'ers! I have been looking around for a program for quite some time that would "scroll" messages across your monitor like the TV stations do. Since I do not have a video camera at the moment, I have found this an excellent way to get your call and messages on tape.

Many years ago I had a program for the old Radio Shack Model III (that is in my garage collecting spiders!) that would simply scroll text from bottom to top in 2 inch letters for attracting "customers" to the counter or window display in a store front (or something like that). In my search through all of my CD-ROM's, I came up with a program called AutoMessage 2.0 that seems to "fit the bill." It allows a top of screen header, I have AutoMessage working with a cheap VGA to composite converter so that I'm able to transfer the messages from the computer's VGA port to video tape or monitor. Although I was not deeply impressed with the video quality (not exactly like TV production graphics) on the monitor compared to my Super VGA display, I realize that for the money invested, it cannot be beat! I'll keep you posted on my progress. I am still playing around with AutoMessage, but I thought I would share it with you folks.

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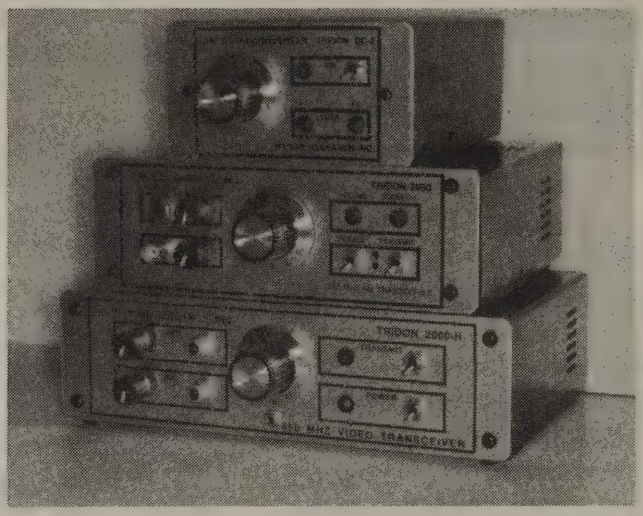
TRIDON 2000	$329.95
TRIDON 2000H	$459.95



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DON STONER W6TNS, NARA, ON ATV

IN MY OPINION

An editorial by Donald L. Stoner, W6TNS

One of the wonderful aspects of ham radio is the diversity of our fraternity. There are really many hobbies within the framework we call Amateur Radio. Some hams like DX'ing, packet transmission of computer data, public service, nets, traffic handling and a zillion other specialties found under the same roof. A fast growing segment, and one that Henry Ruh, KB9FO writes about this month, is Amateur Television or ATV. The big obstacle to getting on this mode used to be the lack of equipment. In the "good ole days," almost everything had to be "home-brewed," in some cases even including the camera. But with the advent of consumer products for home video, the price of cameras and camcorders is very low. At the same time, the quality, performance and resolution of these devices is quite impressive.

The interest in ATV has been supported by ham manufacturers such as Pauldon, PC Electronics, Wyman Research and AEA, who make superb products like TV transmitters, converters and accessories. Speaking of the "good ole days" (which I have been known to dwell on), I have a confession to make to the assembled multitude. Now that the statute of limitations has long since expired, I can confess my sin and purge my soul of the heavy weight it has carried all these years. At the risk of sounding like something on the cover of The Inquirer, I was a TV "bootlegger." For newcomers, I should explain the term, as it applies to ham radio. A "bootlegger" is one who operates on Amateur frequencies without legal permission (in the form of a ham license) to do so. It is not something to be proud of, but I am on the FCC records as the first non-commercial TV "bootlegger" in the US.

The dubious distinction of being the very first "bootlegger" belongs to Sylvania, Corporation. In 1949, they set up a transmitter in Emporia, PA to broadcast television to the area residents. Unfortunately, they did so without benefit of formal blessing by the Federal Communications Commission. It was their contention that since Emporia was in a bowl, surrounded by hills, that they could not interfere with licensed stations. The FCC took a dim view of their argument and punched out their lights, so to speak.

Then along came Mrs. Stoner's young son Donald. Picture it... the year is 1950... the place Flint, Michigan. The FCC had mandated a freeze on the granting of new television licenses until they could determine why distant stations interfered with local broadcasters. Many times in Flint, KPRC (in Houston, Texas) would "cream" WJBK from Detroit, even though their signal had to travel for more than 1,000 miles. Although channel 12 had been allocated to Flint, no new construction permits and licenses were being released by the FCC because of the freeze.

I was always fascinated by television in the days when WJR in Detroit put on a program every few hours. Between shows they placed a rubber Felix The Cat in front of the camera and played Sammy Kaye music on the sound channel. I was in the 10th grade of high school at the time. Other than my dad, I was about the only person in the town who knew how to install a television set. We needed 40 foot antenna masts to pick up Detroit, 60 miles to the south. The Darby Mast Company put up the antennas and I tweaked and tuned the sets. At 16, I knew the old RCA 630TS chassis like the back of my hand. By the way, I saw one of these sets during a visit to the Smithsonian Museum this summer. Boy! Did I feel ancient. The sets I installed back then were now museum pieces.

But I digress. I wanted to build a television receiver of my own. In 1948, there was a big surplus "store" (actually it was under a huge tent) in Detroit that was almost giving away war surplus goods. They sold a big "boat anchor" which they claimed could be converted to a TV set. I remember taking the Greyhound to Detroit (it was safe for a 16 year old boy to do so in those days!) with a buddy. I also remember lugging the big beast (the proposed TV set, not the buddy) back on the bus. It was built to withstand a direct hit by a mortar and weighed a ton.

I came to the realization that anybody could build a television receiver, but it took real brains to make the pictures. I decided to make a camera! My first endeavor was to purchase a 5527 iconoscope tube. There were no vidicon's or CCD's in those days! It cost $20.00 which was a fortune in 1950, even considering the outrageous prices I was charging for a television installation. The camera used a chain of 6AK5's (that a vacuum tube for you youngsters). The camera required a total of 30 tubes altogether and, along with the sync generator, it really warmed up the basement at 506 E.Pierson Rd. And it made pictures. I could see my test pattern with at least 150-175 lines of resolution.

DON STONER W6TNS, NARA, ON ATV

About that time one of those significant events occurred that affect people's lives and which they never forget. Earlier I mentioned the television freeze imposed by the Commission. No one knew when the freeze would be lifted or who would be granted permission to broadcast television in the various areas of the country. All except one station—WFDF, the most powerful AM broadcast station in Flint. Day-after-day they propagandized the public with their slogan.... "When television comes to Flint - WFDF will bring it to you." It was incessant. We heard it before Amos and Andy, we heard it after Jack Benny, Fred Allen, and Fibber McGee. They even messed up Reggie and Doc in "I Love a Mystery" with their stupid commercial. A bright young lad, such as myself, had to wonder how they knew they would be the one selected? While I had no aspirations to broadcast television (if I had only known!), why couldn't I be the first one to bring television to Flint? Sure — why not?

The question did cushion shots in my brain for weeks, maybe months. And there was that stupid commercial of WFDF's itching away like a heat rash in my mind. I couldn't take it anymore—something inside finally snapped! I wired up a 6J6 (that's another tube) modulated oscillator, put six volts on the filament, 200 volts on the plate and connected it to the 300 ohm twin-lead from our Amphenol TV antenna up on the pole. With an evil glint in my eyes, I connected the "kluge" to my camera. A hideous cackle reverberated throughout the house.

What do you suppose—a watt maybe? Probably half that output into the antenna. But my Channel 12 test pattern was seen in Saginaw, Birch Run and Pontiac, not to mention at the studios of WFDF. There was sheer panic in the broadcast executives who had Flint's television future all planned out. As one would expect, they called the FCC in Detroit to see who had been granted permission to use "their" channel. And, as you might suppose, the FCC knew nothing about it. And as you might further suppose, they decided rather quickly that they wanted to know more about this mysterious "melter" of the freeze.

On the second day, I read about my mysterous handiwork in the Flint Journal. The idea crossed my mind that this rebellious streak in my nature might be hazardous to my health. I was now 18 and an adult in the eyes of the law. I wisely decided to shut down the transmitter and promptly put an end to my budding career in television broadcasting. While the FCC moves somewhat slowly, they certainly do move and their movement is inexorable. On the third day, I was visited by a fellow who introduced himself as the radio inspector from the Detroit office of the FCC. And while he was not able to monitor the errant transmission, the word around town was that it might have it's origin in my neighborhood.

Like a gentleman, he allowed me the luxury of a bald-faced lie that my tripler stage to 432 MHz must have been radiating. He did not embarrass me by asking to see my ham license, nor dispute how the 22 MHz discrepancy would make this harmonic interference possible. He didn't even inquire how I happened to have Channel 12 printed on my test pattern!

It also turned out that the "RI" was W8DX. We reached an understanding that the FCC would not prosecute the case if I took steps to insure this could never happen again and if I would give him the schematic for the television camera and sync generator. Needless to say, I was more than willing. The phrase $10,000 or 10 years struck fear in every nerve-ending in my body. I suppose Justice was well served. I got off easy and W8DX went on to become one of the "big guns" in ham TV.

Like many stories, this one also ends on a commercial note. While your introduction to ATV might not be as exciting as mine, it is a fascinating activity. Henry Ruh, KB9FO, a book out called "ATV Secrets For Aspiring ATV'ers." The way the book has been organized makes learning the basics of ham TV easier than saying the title. He covers transmission and reception from both earth bound stations and from space, getting started, public service, balloon, rocket and radio controlled ATV and an index of articles that have appeared in past issues of ATVQ, the quarterly publication for those interested in this exciting hobby. For now, 73 DE Don, W6TNS

SUPER CIRCUITS

From: fkf1@cornell.edu (F. Kevin Feeney) Reply-to: atv@irony.com (The atv mailing list)

Circuit kits that look like they could go on the Heli are: MM-1 MiniMax ATV kit, ~1Watt 439Mhz, $110 ATV-2 2 Watt ATV, 439 MHz $140 ATV-900 915 Mhz 1.5-2 Watts $170.

What is the license situation with this 900 mhz unit. 902-928 is a shared ham band, but I wonder if there is some other stuff that can be used there license free, and what the power limit would be. TVX-1 Micro-size ?? Watts 439 Mhz $100, prebuilt

This sounds like the little SAW based (surface acoustic wave) unit that PC electronics and others sell. Set on 434 mhz with 80 mw out if it's the same one. Can't change channels, and I don't think that falls on a regular CATV channel, so a tunable downconverter might be necessary. Or maybe a regular TV can AFC over the .25 mhz and deal with it. Anybody know?

So far, I'm inclined to go with the PC Electronics offering, since it seems more proven, and their catalog represents them as more specific, technical and ham-oriented than the SuperCircuits listings which remind me of the DAK descriptions. :-)

Amen to that, but the cameras are nice. I get the feeling they'll sell a ham band unit to anybody - after all, it's not their worry. PC electronics has been around a long time, and Tom has sent me email and parts for RC filtering on the input of the receiver, along with hints about how to shield things. I've worked with several of their products and have been quite pleased. SuperCircuits also has an interesting multi-band TV tuner for $100 that takes ATV/VHF/UHF and outputs straight video and audio. Normally, I use a busted VCR to do this, but I won't be able to haul it out to the flying field, so the portable tuner sounds pretty good. I'm concerned that it's small battery-powered performance might be poor, though.

Any guesses to how it would compare to the 430 Mhz P.C. Electronics downconverter with a whip antenna? -Steve

The PC electronics downconverter has about 20 dB of gain and a 2 dB noise figure, and becomes the front end of your set when you use it. A normal cable ready tv probably has a usable signal sensitivity of around 200 uV and a noise figure of about maybe 5 dB (SWAGs based on past reading) [Ed: CES spec is 8 dB NF and 50 uV] In comparing two setups last week I was using a 1 watt PC before. For now, I'm more interested in the video itself than the technical details of the ATV Tx/Rx, so pre-built link hardware sounds better than homebrew. SuperCircuits sells a 1.2 GHz FM ATV link they call the "PowerPlate". It has a nice small transmitter that draws only 300mA@12v and puts out up to a watt of video/audio. The transmitter is supposedly "ruggedized", which could be really handy considering the conditions I want to subject it to. The receiver has regular base-band audio/video output, which is a real win for me, since I'd rather not haul out a channel 3 tuner with a downconverter. Anyway, the only down side to their link unit is the price: a whopping $1490, which is a bit more than I'm willing to spend (or crash :-). Does anyone have any suggestions on what other mostly-pre-fab solutions would work well? I'm also considering the PC Electronics 430 MHz TXA5-RC for $129 (and downconverter, etc), so any experiences with that unit would be helpful too. Thanks! Steve Haehnichen Vigra, Inc. San Diego, CA steve@vigra.com (619) 597-7080 x169 Fax: (619) 597-7094

From: steve@vigra.com (Steve Haehnichen) Reply-to: atv@irony.com (The atv mailing list)

I have some 900 MHz Gemeni Rabbits that I've tried to use, but the range is pretty pathetic. I tried adding a small NEC amplifier module from Down East Microwave, but it didn't help. It's very likely I didn't do it right, since I just took the antenna and ran it to the input of the amp, and stuck a cellular antenna on the output. What transmitter did you use? -Steve — Steve Haehnichen

Steve, I've been using a PC electronics TXA5-RC for a year for various things and it seems to work nicely. I've mostly been running it around on an RC car, while I debug the RF interference into the control receiver before I put it in my 1/4 scale cub. It's handy to be able to watch it on any cable ready tv (mines on 439.25, CATV channel 60), and if the range is short, you probably won't need a downconverter. The downconverter has a pretty hot front end compared to most tvs, and it's not channelized so you can tweak for best picture. But if you are within a mile and LOS, I think you'd do fine with just a small cable ready tv. 1500 is a bit much considering you can get the transmitter alone for 70 cm for $159. That's the route I'd go, in fact I did! :-) Now, my question is what antennas work well in the air? I'm thinking of a dipole back on the tailfeathers at right angles to the rc receiver antenna. Any others that I should consider? 73 de Kevin, WB2EMS Homepage http://ascension.cit.cornell.edu

Subject: Adjusting output power on KPA5 transmitter?

From: steve@vigra.com (Steve Haehnichen) Reply-to: atv@irony.com (The atv mailing list)

First, thanks for all the input and info on the various ATV transmitters out there! I chose the KPA5 from PC Electronics, and it arrived yesterday. When I spoke to Tom at PC E., he said the only difference between the TXA5-RC w/ audio subcarrier board and the KPA5 (includes audio) would be form-factor. Oh, and the KPA5 has two switchable channel crystals. I chose the KPA5 just to keep it as simple as possible, and I just found out that it's missing one of the nicer features of the TXA5-RC: Adjustable power output. The KPA5 is fixed at ~1.5 Watts, while the TXA5-RC can be set from 100mW to 1.5W. This is really important to me, since I want to stick the Tx into a model helicopter, and I don't think I need a whole watt of power. I'd like to make it as low as possible to keep from interfering with the R/C receiver and other ATV activity. So, has anyone added an RF output gain control to the KPA5? Does it seem feasible, or should I send it back for the TXA5-RC? Thanks again. Steve Haehnichen Vigra, Inc. San Diego, CA steve@vigra.com (619) 597-7080 x169 Fax: (619) 597-7094

From: fkf1@cornell.edu (F. Kevin Feeney)

Steve, I'm pretty sure you can twiddle the power up and down by adjusting C4, if I remember right it's the interstage couple cap from the driver to the final. I think you can get power arrangements from 100 mw or so up to the rated power. Check the tuneup procedure in the manual - I think it refers to it in there. Or ask Tom, he's very helpful.F. Kevin Feeney Network Video Engineer 172 Caldwell Hall Cornell University Ithaca, NY 14853-2602 Phone - (607) 255-5186 FAX - (607) 255-5771 EMAIL - fkf1@cornell.edu

From: steve@vigra.com (Steve Haehnichen)

I checked the schematic, and I wish I understood more about how these things work. C4 is part of the region marked "2nd Doubler", going between the 2N5770's collector and ground. Does this sound like the one? I talked to Tom this morning, and, well, he wasn't really helpful. He seemed defensive about it not having a power adjustment, and said it that one can't be added. Looks like I may have got the wrong board. On the other hand, he did say that the difference between 1/4 W and 1W isn't that significant, and other folks have had success with R/C models using 1W and good receiver shielding and antenna arrangements. Contrary to what I thought, the battery power consumption doesn't go down proportionally to the RF output, which was the other reason I wanted to turn it down. Steve Haehnichen

Subject: BYPASS CAPS

From: mco@hpisdaav.ptp.hp.com Reply-to: atv@exchange.tlh.fl.us To: atvq@aol.com

Okay. Time to pull out the stops and find the parts I need. Background: I'm into R/C models - fixed-wing aircraft to be exact - and I'm in the process of duplicating the "ATV from R/C plane" experiment that so many people have done before. I have a finished, working and enclosed 1 watt, 434 MHz AM ATV system that I can sling under my plane. I have lofted the package (despite a relatively long takeoff roll) several times and the plane handles it just fine. My only remaining problem seems to be interference between the ATV Tx and the R/C Rx. Problem Statement: I am in the process of shielding my Rx to eliminate the interference I get when the ATV Tx is on. I have located the ferrite beads, cast aluminum box, LP filter and braided shield I need, but I'm having difficulty locating a manufacturer or distributor that I can buy my feedthrough caps from. I have tried the local and national electronics suppliers and all of the "used parts" stores Silicon Valley has to offer, but the best I've been able to find is old, used 180 pF parts that are all missing their odd-sized nuts. Plea: Does someone out there know of a good supplier of feedthrough caps? My preferred value is 470 pF, bolt/nut type, and I don't mind paying more for NEW parts rather than used. — Over the bridge, through the gateway, off the fuzzball, nuthin' but net! My opinions are mine alone - nobody else wants them! Mark C. Otto mco@minyan.ptp.hp.com (408)746-5432 Software Design Engineer, Hewlett Packard Integrated Systems Division 1266 Kifer Road, M/S 102J, Sunnyvale, CA 94086

ALFORD SLOT ANTENNAS

From: FREEZE@egertp.ericsson.se To: atvq@aol.com

Hi folks, I looked at a friends copy of your magazine and it looked interesting. How can I subscribe and how much is a subscription? Just send an E-mail back to "freeze@egertp .ericsson.se" to respond. Also, on behalf of the Triangle ATV Association I have a request. We have two AS70 Alford Slot antennas we are planning on using for an ATV repeater. One seems to work OK. The other resonates out of band at about 460 MHz. We need some help in trying to understand how the antenna is supposed to work and hopefully we can repair it. The antennas were bought from Mike Stone (I think that is the right name). He made a video tape a while back on how to construct the antenna for those who wished to build their own. We would

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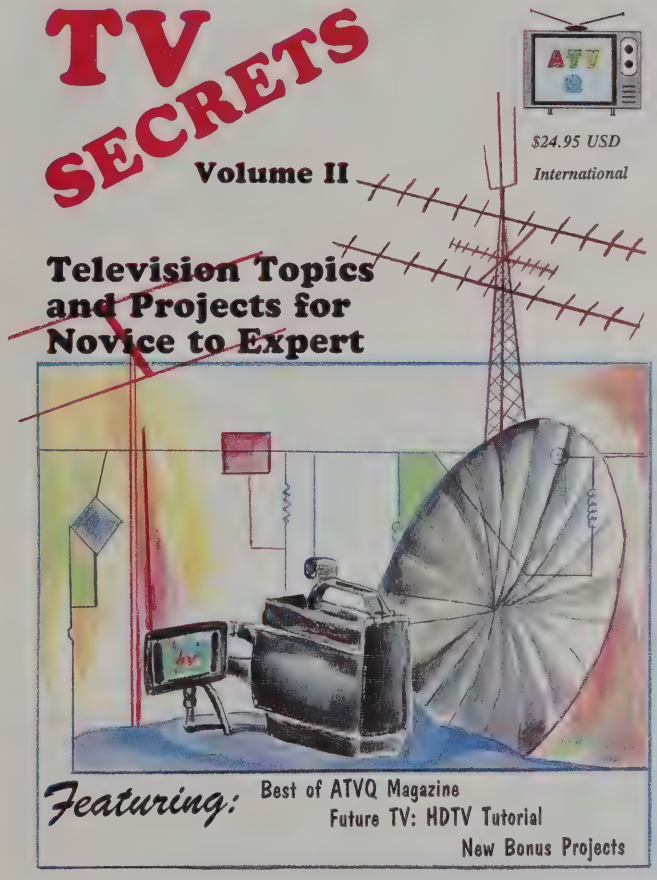

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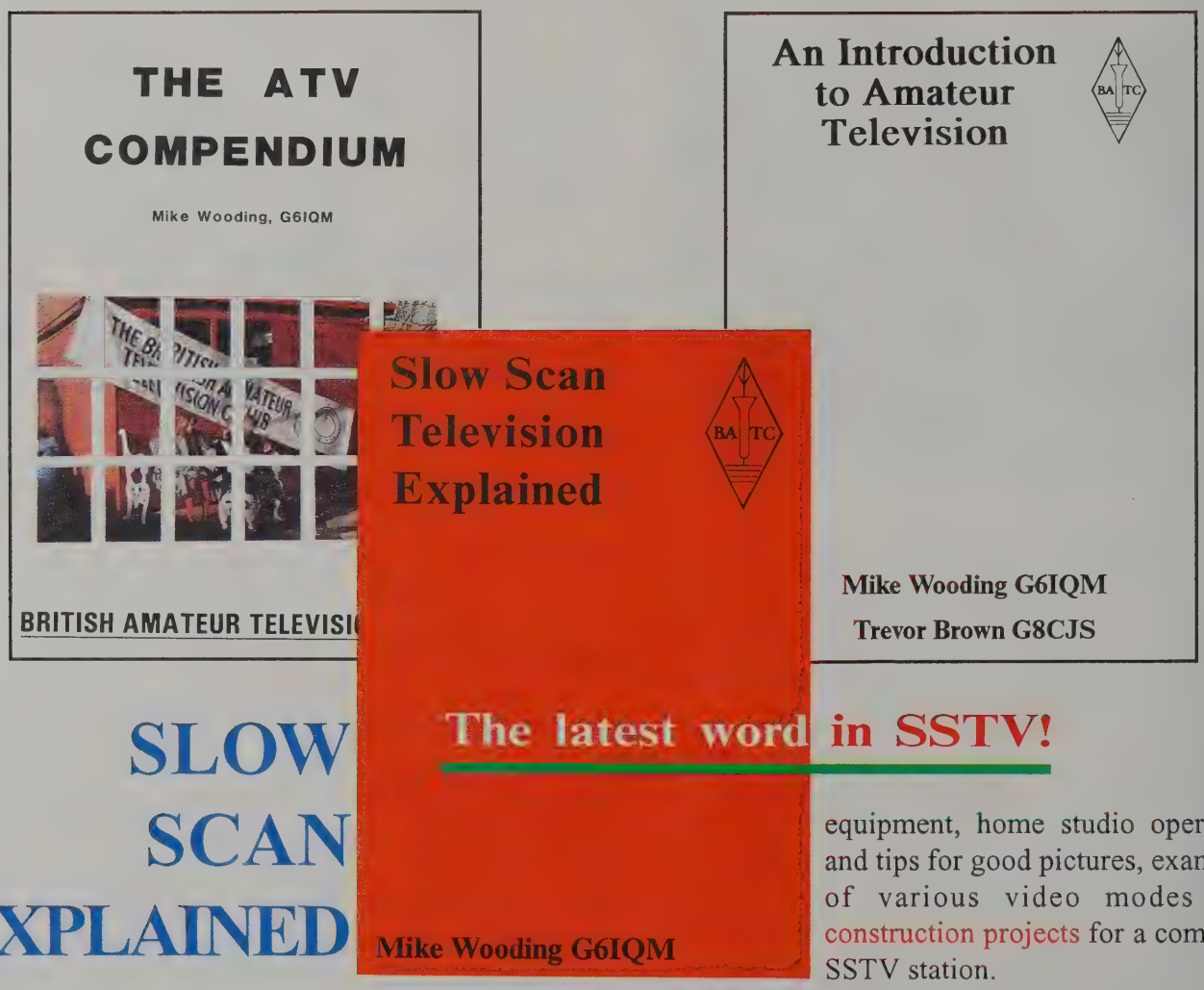

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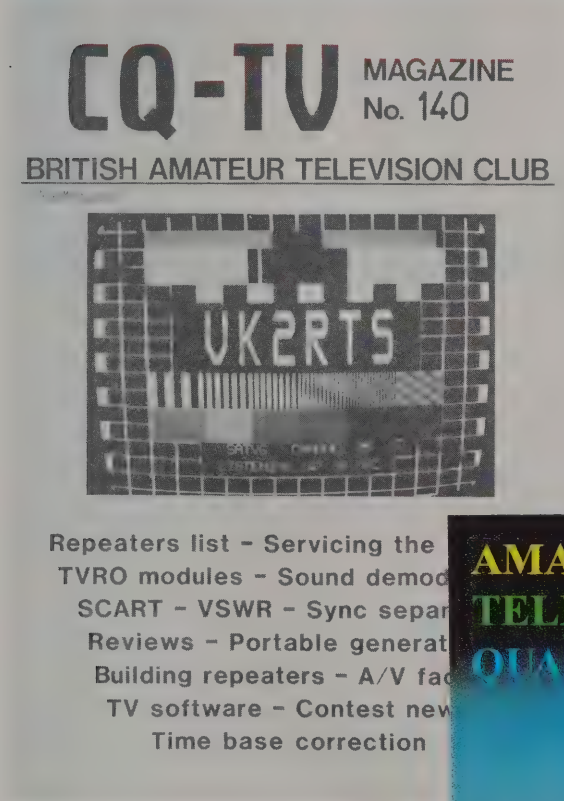

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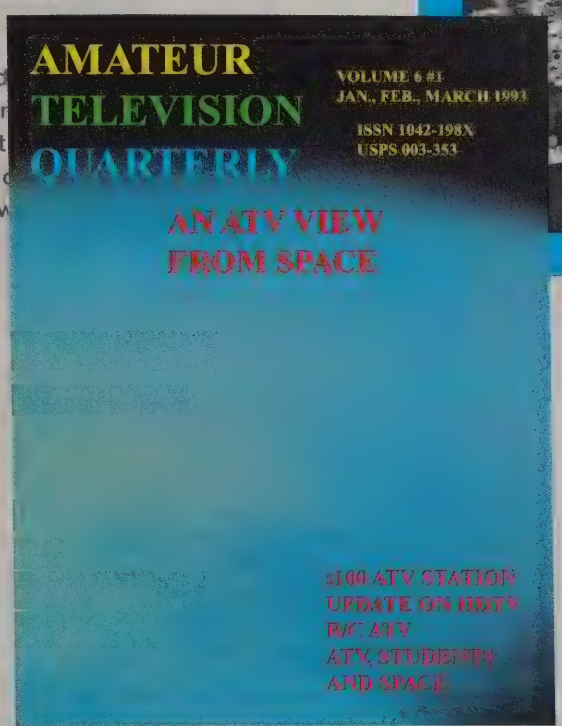

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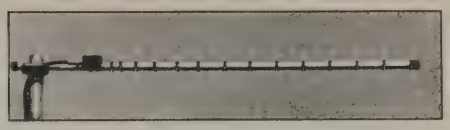

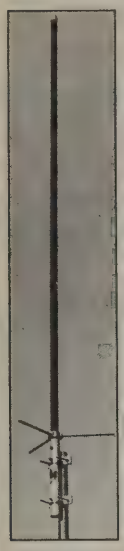

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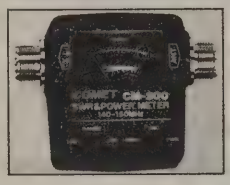

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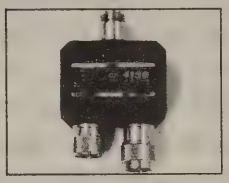
Connectors: N-Type



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From: BCdlr Could you fill us in on some BBSs that would have MSCAN or post it to the software area here? Thanks Dan Reynolds, bcdlr@aol.com, KB9JLO

From: Radiogeorg

Anyone out there have any luck getting the 'slow scan for sound blaster' running on a pro audio spectrum 16 board please reply to radiogeo via 'email' Help for sstv for sound blaster I am trying to get the ''slow scan for sound blaster" software running with a pro-audio spectrum 16 board. It supposed to have been done, would like to talk with someone who has done it. i am computer literate but know nothing of the sound blaster board pse respond via email to radiogeo New, Better and Cheaper SSTV

From: QHall Stop trying Sound Blaster and other options! Today a 741 OPAMP plus a few parts will give you a Modulator\Demodulator interface that (with a PC +Truecolor Video Board) produces outstanding high resolution,hi-color pictures. A JVFAX or HAMCOM interface works great with the latest software called MSCAN 2.0 Look for MSCAN20P.zip on HAM BBSs and really be where the state of the art is for less than $20.00!! You fellows are looking down a tube! Have fun!! KO4VX

Help to SSTV Newcomers

From: DCasan4095

hello out there.is there anybody who knows if heres a program for the AEA dsp 2223 for sstv and is there any body who knows how to use the jvfax with this unit tnx for reading this msg 73 kb2mhk-dave

Subject: Color quality

From: steve@media.mit.edu (Steve Mann) Reply-to: atv@irony.com (The atv mailing list)

I presume much of the ATV community sends/receives greyscale images because of the simplicity in camera/display design, but I was wondering how many out there have done color ATV, and have addressed the issues of color drift, etc. I use a downconverter and standard tuner, but sometimes find that when I turn on the AFT, the images fade to grey, and I need to turn off the Auto Fine Tune (AFT) and manually run the fine tuning around to pick up good color fidelity. Is there any particular tuner that works well for good color?

From: fkf1@cornell.edu (F. Kevin Feeney) Reply-to: atv@irony.com (The atv mailing list)

I'm not sure that's a good assumption. Most of the folks I know use their standard color camcorders to feed the transmitter, and use their regular home TV's for reception. Sometimes the B/W equipment is easier to come by, or is more portable, but that's getting to be rarer these days too. I use a downconverter and standard tuner, but sometimes find that when I turn on the AFT, the images fade to grey, and I need to turn off the Auto Fine Tune (AFT) and manually run the fine tuning around to pick up good color fidelity. Is there any particular tuner that works well for good color? I use the PC electronics downconverters and they seem to work fine for me. 73 de Kevin, WB2EMS

Subject: Re: Homebrew ATV antenna question

From: fkf1@cornell.edu (F. Kevin Feeney) Reply-to: atv@irony.com (The atv mailing list)

I'm looking for suggestions on simple but effective antennas for 430 MHz ATV. The equipment (which arrived yesterday) consists of the PC Electronics downconverter, exciter and 10 watt amp feeding a 100 watt Mirage amp. I have a 8-foot 11-element quagi almost ready to go. Any better ideas? Does stacking antennas reduce bandwidth too much? I've used Quagis with good success, and helixes also. The quagi's seem to have more bandwidth than a yagi with the same element count, and the matching seems much less critical. I usually tune them for the video carrier frequency or a little higher. They don't seem to be sharp enough, at least over the paths that I use, to clip the colorburst too much. I think that some yagis have been known to do that. The helix is even more broadbanded (mine is flat from 420-450) and can be used with stations receiving on both UHF vertical (FM) antennas and horizontal (TV LPA's pressed into service) equally well. They are very tolerant of dimensioning with the exception of the last turn towards the base with the radial 50 ohm matching technique. But once you get it right, it's wonderful. I've been using one for AO13 for 5 years that has 14dbd of gain to single polarization. It's 14 turns on a 10 inch diameter with 8 inches per turn. Ten foot long overall, made with 1x2's and copper tubing. It's good for satellites, atv, fm, and weak signal ssb, plus it's not bad on some of the uhf channels :-)

Subject: R/C Antennas

From: fkf1@cornell.edu (F. Kevin Feeney)

Most commonly a quarter wave wire, either along the fuselage or along the wing works. some use a whip off the top of the wing at centerline. Biggest problem is desense of the RC receiver. There have been complete writeups in ATVQ including the latest issue. 73 Henry KB9FO

Hi Henry, thanks for that lead. I've been working on shielding the receiver and next is to put some toroids on the long aileron leads and some caps across the servo. How does one subscribe to ATVQ - I took it a couple of years back and let it and all my other mags lapse a while ago. I'd like to start up again. Do you take submissions? I'm hoping to work up some stuff in the next year that might be of interest. Or do you have a regular stable of writers? Another question - do you have any advertisers who deal in good omni-horizontal gain arrays for repeaters - especially slot antennas? We're re-siting our repeater and need more gain. And finally, looking back through old issues I see that some of the folks were putting in some big arrays, including you I think. Are you ever able to reach out into Central NY? I've got 25 watts into a 14 dbi helix and wonder if I have a chance of working anything except locals. Thanks in advance. 73 de Kevin, WB2EMS

Subject: Random thoughts and questions from a new ATVer.

From: carndt@slonet.org (Chris Arndt) Reply-to: atv@irony.com (The atv mailing list)

I'm pretty new to ATV. (I'm the one that got roped into it by the non-ham that wanted to run live video from my brother-in-law's blown gas hydro drag racing boat. Nothing to report on that front, yet, as they dinged the engine before the first TV run.) I've built a couple of the 2 watt Supercircuits ATV transmitters (one for the boat and one for me.) Anyone have any thoughts or tips on these boards? I did overheat the first one by running it continuously on 13.8 volts without additional heat sinking. I upgraded that on the second one, and have run it for 10 hours with no problem. I still have to tinker with the subcarrier audio, though I suspect that it will always be

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iffy. (FWIW, the boards came with 439.25 xtals. I've been able to receive this on cable channel 60 and 5 el Larsen yagis over a 3 mile path with no preamp on a Rat Shack TV/VCR combo and a Sony Trinitron, and below UHF channel 14 on a 2.5 inch Rat Shack LCD TV.) What about Supercircuits' 10 watt ATV amp kit for $139? Is it worth it? Does anyone supply AM 2.4 GHz ATV xmitters? The amateur 2.4 allocation is just below (I believe) the wireless cable allocation. I have a wireless cable downconverter that I'd like to try on ATV. (They are available from Phillips-Tech and are reasonably priced (about $250).) The wireless cable comes out around 300 MHz (cable 40), so ATV would come out a few channels lower. I've integrated off air VHF TV (3, 6, and 12), satellite IRD output on channel 4, wireless cable (currently cable 40-53) and off air UHF (UHF channels 20-57 match to cable channels 71-113 on my Sony) with an array of antennas, amplifiers, splitters used as combiners, and a ch 4 combiner, into our own home cable system. Now all I have to do is combine in the ATV yagi and an amp, and I should have ATV on the system, too. (So far I don't have any channel conflicts. :-)) Thanks for any thoughts or suggestions anyone has. 73, Chris

Subject: Re: VSB filter

From: jdc@sunsrvr2.cci.com (James D. Cronin) Reply-to: atv@irony.com (The atv mailing list)

RE: >a "standard" TV signal is the carrier, uppersideband, and a portion (vestigial) of the lower sideband. This is because of the DC component and low frequency response requirements of a regular TV set. VSB filters are used on repeaters or for band edge protection. The TV set does not care if the signal is VSB or DSB. It only sees what is in its passband. Other band users "see" the other sideband as wasted spectrum. The best VSB filters are from ICM, the second best are from Spectrum International, the remainder..... if it hasn't been in ATVQ, it probably isn't worth buying. 73 Henry KB9FO

That brings up even more newbie questions... Does eliminating the lower sideband before the final amp give better "talk" power and better utilization of your amp's capacity to generate power? I also seen mention of placing VSB filters after the final power amp. The reason given was that the amp regenerates the lower sideband. How does this happen? Or is it just caused by distortion from the amp? How many ATV'ers use VSB filters? Isn't it a "good citizen" kind of thing to to? 73...Jim N2VNO

Hi Jim, N2HJD milled down one of those cell phone interdigital filters for me to move it up to 910 MHZ and tuned it on his spectrum analyzer. I do use that on my rabbit. His N2HJD/R on 442.8 wipes out my color... When the PC/E has it's audio turned all the way down it generates some kind of spur on or near his input (447.8) VSB would help, I just don't run with the audio off. Anyway, I have a VSB for 439.25 but don't use it.... I use a 22 inch box fan on low setting to cool my D100, (it has volkswagon sized heat sinks,) have run it for hours at a time. In the winter, I can feel the heat running off it but it is only warm to the touch. (It was probably warmer inside!) Don't know if I blew the bias on it or some of the output stage, it's only getting about 30 watts right now ... - Ed. aa2mz

From: ATVQ@aol.com

A D100 with 1 watt video in will normally show about 42 watts on a Bird. Don't forget, the 50 watts from the D100 is an average power of only 25-30 watts, and we still have to have fans on the amps because Mirage is too cheap (as well as the other manufacturers) to put on good duty cycle heat sinks. They all seem to think we talk 1 minute on, 9 minutes off. Only in the NET! Most QSO's I have are 5-30 minutes on, then 5-30 min off on video!

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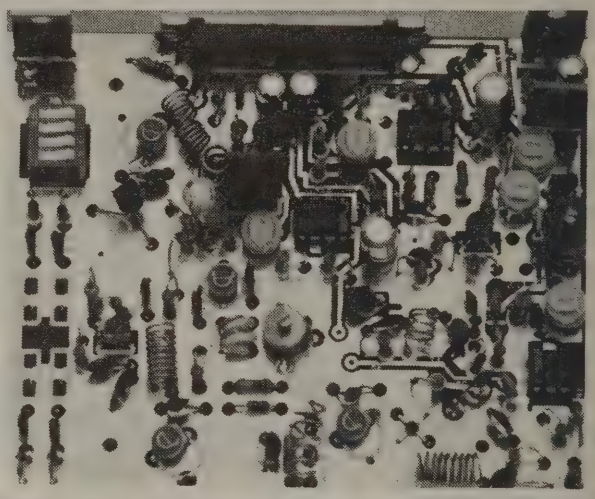

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From: jdc@sunsrvr2.cci.com (James D. Cronin)

In the North Country catalog they mention a vestigial sideband filter requirement for one of the ATV frequencies. What chunk of the signal does it take out? Does this imply that a normal TV signal is the carrier and one sideband? Why aren't they used on other ATV frequencies? 73...Jim N2VNO

Reply: Henry KB9FO. VSB filters are used to restrict the transmitted bandwidth to that usually occupied by a broadcast TV signal, since we all use broadcast bandwidth TV sets. The remainder of the signal (the part filtered away) does nothing for the receive end, but does open some spectrum for other users. Unless, of course, you are on 439.25, where the FM boys clobber ATV, and we then tune to the "clean" lower sideband, provided you didn't filter it away. 434.00 VSB is still a good option to QRM on 439.25 for VSB operation.

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EAST TENNESSEE ATV

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Smile—You're on Ham Radio!

Wouldn't you love to own and operate your own television station? With the equipment available today, you can set up your own Amateur Radio TV station cheaper and easier than ever before!

By Brian Battles, WS1O, QST Features Editor andSteve Ford, WB8IMY, Assistant Technical Editor

Imagine having on-the-air conversations with hams you can actually see. When they smile, you'll see them smile. When they wave, you'll watch them wave. If they have a new gadget to show you, you'll see it operate firsthand. Does this sound incredible? For hams who operate fast-scan amateur television (FSTV), it's an everyday occurrence!

Fast-scan amateur television is better known among hams as simply ATV (although the term ATV also applies to slow-scan TV). ATV is enjoyed by anyone with a ham license. Novices, for example, have ATV privileges from 1270 to 1295 MHz. Hams licensed at the Technician class or higher enjoy the most flexibility. They have full access to all amateur frequencies above 50 MHz, and most ATV activity is concentrated in the 420-440 and 902-928 MHz bands. If you're able to take advantage of these privileges, you'll have a great time with television.

What Can You Do with ATV? We could fill several pages listing all the possible applications for ATV. Here are just a few to tickle your imagination:

o Show videotapes of your DXpedition or your club's Field Day effort.

o Show off your latest project.

o Transmit video images of your computer satellite-tracking program or other software.

o Display your DX QSL cards.

o Transmit a videotape of your new car with detailed views of the interior, engine and so on.
(No one says the content has to relate to Amateur Radio!)

o Mount an ATV transmitter and camera in a balloon, a radio-controlled model airplane, car, boat or rocket.

You can transmit just about anything on ATV, as long as it isn't affected by copyright laws or FCC prohibitions against using Amateur Radio for business purposes. For example, you can't tape a television program and retransmit it on ATV. If you're a real estate agent, you can't show pictures of the homes you have for sale on ATV. There are also prohibitions against transmitting video with music or obscene content. ATV has terrific public service potential. Local public service agencies and government emergency preparedness offices welcome ATV coverage of community events, drills and disasters. You can take your portable ATV station aboard a police or National Guard helicopter to survey the extent of forest fires, floods and storm damage. Parades, walkathons, bicycle races and other outdoor activities can be supported by skillful placement of mobile ATV units. ATV-equipped weather observers can aid National Weather Service officials by showing them live images of storms or tornadoes. Some ATV clubs have linked their ATV repeaters with National Weather Service radar. When severe weather threatens, hams throughout the community can watch the development of approaching storms.

Do you have a taste for the exotic? How about mounting a simple camera, transmitter and associated electronics in a compact package and launching it as the payload beneath a helium balloon? ATV balloon flights have become popular in recent years. Balloon experimenters have amassed thrilling videotapes recorded from the received signals of ATV payloads carried to the edge of space, more than 100,000 feet up! The view from an altitude of 20+ miles is breathtaking!

Closer to the ground, hams combine hobbies by controlling their radio-controlled aircraft, boats and cars with a pilot's-eye view monitored from a camera installed in their miniature craft. Amateur rocketeers mount ATV equipment inside model rocket nosecones for a rapid ride up to several thousand feet, watching the world recede beneath their "eye in the sky."

Get a Glimpse of ATV I

n any given month, at least one or two ATV experiments are conducted somewhere in the US. Perhaps you'll be close enough to watch the fun! From spring through autumn, ATVers launch high- altitude balloons and rockets whose transmissions you can receive by using inexpensive ATV downconverters. Downconverters receive ATV transmissions and convert them to commercial VHF television signals you can tune on any TV. Some portable LCD TVs can tune ATV signals directly, but most lack the sensitivity to provide sharp, clear images.

Packet bulletins and HF nets are excellent sources of information about major operating events. Regional ATV nets meet Tuesday evenings at 8 PM Eastern Time on 3871 kHz and Sundays at 10 AM Pacific Time on 7243 kHz. Check into your nearby packet bulletin board (PBBS) and scan through the mail for ATV announcements. If you don't find any, post one yourself, asking whether anyone in the region is an active ATVer. You may be surprised at the responses you receive.

Although special-event operations are exciting, you can also tune into regular ATV activities. You may find stations communicating to each other directly or stumble across an ATV repeater. Like voice repeaters, ATV repeaters relay signals over wide areas. The ATVers in your community can tell you the best frequencies to monitor.

Getting Started

At first glance, ATV seems like a costly activity. If you use broadcast television stations as your guide, you're looking at a substantial investment for transmitting gear, video monitors, cameras, sync generators and so on, right? Unless you choose to set up the ultimate station, ATV is very affordable. If you happen to own a typical home video camera or camcorder and a basic TV set (black and white is fine), you can purchase a new ATV transceiver for about $300 to $400. Add perhaps $75 for a reasonable antenna and a few dollars for cables and miscellaneous odds and ends. You can get your TV station on the air for less than $500—and that's if you insist on new equipment. You can build your own from scratch or from a kit, or buy inexpensive used gear. With a little resourcefulness, you may be surprised to find yourself the proud owner of a television station for an investment of $100 or less.

Antennas, Amplifiers and Preamplifiers

All amateur fast-scan television (FSTV) is on UHF and microwaves, so high-gain antennas are relatively small and easy to manage. A high-gain, multielement Yagi for 434 MHz is typically 5 to 10 feet long and gives you a big boost on transmitting and receiving. If there's an ATV repeater close by, a simple 2-foot, 3- element Yagi may be adequate. Check the ARRL Repeater Directory\1/ and talk to ATV operators in your town. Find out where the repeater is located and how sensitive it is. Assuming that you can receive a strong signal from the repeater—and assuming the repeater can hear your signal—a UHF groundplane antenna may be all you'll need.

When choosing your ATV antenna, don't forget about polarization. Most antennas used in ATV applications are horizontally or vertically polarized. Yagi antennas, for example, can be horizontal or vertical, depending on how you mount them. Groundplanes, on the other hand, are vertically polarized. Using the proper polarization is important. If you're vertically polarized and the station you're talking to is horizontally polarized, you'll both experience a noticeable loss in received signal strength.

So which antenna polarization should you

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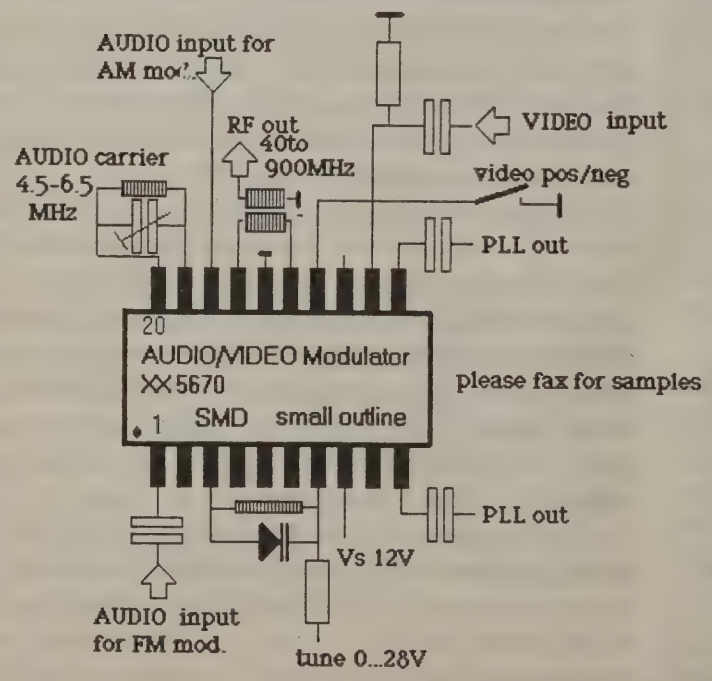

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use? It depends on the ATV activity in your area. If you intend to operate through an ATV repeater, vertical polarization is best because most repeaters use vertically polarized antennas. For direct contacts—or ATV DXing—horizontal polarization is the standard. Some antenna manufacturers allow you to enjoy the best of both worlds with dual-polarization antennas. These are basically two Yagi antennas mounted on the same boom. One is in the horizontal position and the other is vertical. An antenna switch (often remotely controlled) is used to select one antenna or the other.

In marginal areas, a receiver preamp mounted at the antenna can be a big help (it's probably a good idea no matter where you live). If you have a powerful TV broadcast transmitter nearby, you might have to add filters to keep the commercial station from overwhelming your receiver.

If you aren't within a dozen miles or so of an ATV repeater, think about adding a power amplifier to your station. Most typical ATV transmitters put out 1 to 10 watts, and boosting that to 50 or even 100 watts can extend your range substantially.

You're on the Air!

How do you call CQ on ATV? If you want to be informal, just sit down in front of the camera and make yourself comfortable. Activate your transmitter and say, for example, "This is KY1T in Newington, Connecticut. Anyone around?" Switch back to the receive mode and wait for a response.

Another approach is to broadcast an image of your call sign for several seconds while announcing your invitation. Your call sign should be large enough to fill the entire screen. Bold, black letters on a white background will make it easier to read at greater distances. Include your 2-meter coordinating frequency (more about that shortly). Computers or character generators can also be used to create attractive ID screens. Let your imagination be your guide!

You can establish contact with another station on a single frequency (simplex) or use an ATV repeater with separate input and output frequencies (duplex). The same operating procedures apply in either case. ATV repeaters transmit identification beacons (usually brief transmissions consisting of their call signs and creative graphics) to help you find them. These IDs are often transmitted at regular intervals (on the hour and half-hour, for example). When you transmit, the beacon will disappear and your video signal will be relayed through the system. When you stop transmitting, the beacon returns.

When you finally establish contact, the first order of business is to exchange signal reports so that each of you knows how well your signals are being received.

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ATVers use the "P" system to describe the amount of noise (or snow) in the picture. A P5 picture, for example, is the best image possible with no visible noise. A P1 picture is very weak with a great deal of noise.

The 2-Meter Connection

In many areas of the country, it's a popular practice to use a 2-meter FM simplex frequency or a repeater for local ATV coordination. This allows ATVers to make adjustments while transmitting. Because mutual interference between the 2-meter and 420-MHz equipment is minimal, ATVers can get immediate comments on their signal quality and make additional adjustments as necessary.

Many enthusiasts call CQ on 2-meter FM and 70-cm ATV simultaneously. This technique is effective in attracting the attention of local operators who may be monitoring 2 meters while their ATV equipment is inactive. If ATV coordination is taking place on 2 meters in your area, try to find the frequency. (144.34 and 146.43 MHz are popular.) By listening to the chatter, you'll get a pretty good idea of how many ATV stations are on the air, where they're located and when they're active.

ATV DXing

There is more to ATV than chatting with your local friends. You'll also have opportunities to enjoy QSOs with ATVers hundreds of miles away. It doesn't happen every

day, but when it does, ATV DXing offers genuine excitement!

If you plan to work ATV DX via direct, single-frequency contacts, you'll need to invest in the best equipment you can afford. Antenna-mounted preamplifiers are mandatory, as are RF power amplifiers and low-loss coaxial cable or hardline. Some ATV DXers use a single, high-gain Yagi antenna (horizontally polarized). Others use several Yagis working together in a carefully designed array Arrays are capable of the high performance required in DX applications.

You can work DX through your local ATV repeater. When the band is open, many ATVers attempt to reach repeaters in distant locations. Don't be surprised if you call CQ on your repeater one evening and receive a reply from an ATV DXer!

The best times for ATV DX are around sunrise and right after sunset. If your family TV is connected to an outside antenna, tune through the commercial UHF channels. If you see distant stations, especially on channels 14 through 30, a band opening may be in progress!

Start Exploring!

If you can get your hands on a downconverter and a Yagi antenna, you'll be watching local ATV activity tonight! If you're reluctant to invest in equipment now, contact the ATVers in your area. Many ATV clubs will loan equipment to get you started. If nothing else, you can visit an ATVer's station and watch the fun in person. Check the ATV "Resource Guide" for more information and addresses of ATV equipment manufacturers. Once you put together an ATV station and get on the air, you'll be hooked forever! Notes

affordable Video Cameras

The next time you're at a hamfest, look for a used closed circuit TV (CCTV) camera. Most of these cameras are black and white and they're great for getting started. Used CCTV cameras are often sold for as little as $30, depending on their condition. If you buy a used CCTV camera, be prepared to do a little work. You may have to build a special power supply or troubleshoot a few problems. Even so, if you purchase a camera that's in decent shape, you'll be on ATV at a bargain price!

A camcorder can also be used for ATV. Prices have been falling in recent years and camcorders are showing up on the used equipment market. A camcorder is one of the few items in your ham shack that has plenty of value for nonham family activities. This may make it easier to justify the purchase.-WB8IMY

FREE ON-LINE HAM MAGAZINE

From: Ed Mitchell, KF7VY, Kim Anderson-Mitchell N7VPL
vbook@vbook.com

We've just produced the first, preliminary edition of a New Ham Radio Online electronic magazine. And it's free! Really - this is a hobby remember! This is freeware. We are not affiliated with any "real" magazines.

Our goal is to provide an interesting and easily accessible collection of content - not just a bunch of pointers to cyberspace - but actual content including stories, audio clips and pictures. We want this to be a place of value to hams and prospective hams.

The layout is intended to look clean and professional. We would like to hear your feedback. Do you like it? What would you like to be included? What would you like to contribute?

Since we are not limited by page counts (like real magazines) we plan to have sections devoted to special interests like ATV. Please visit the web site at http://www.acessone.com.80/~vbook/hronline.htm and then write to us to let us know what you think. Thank you.

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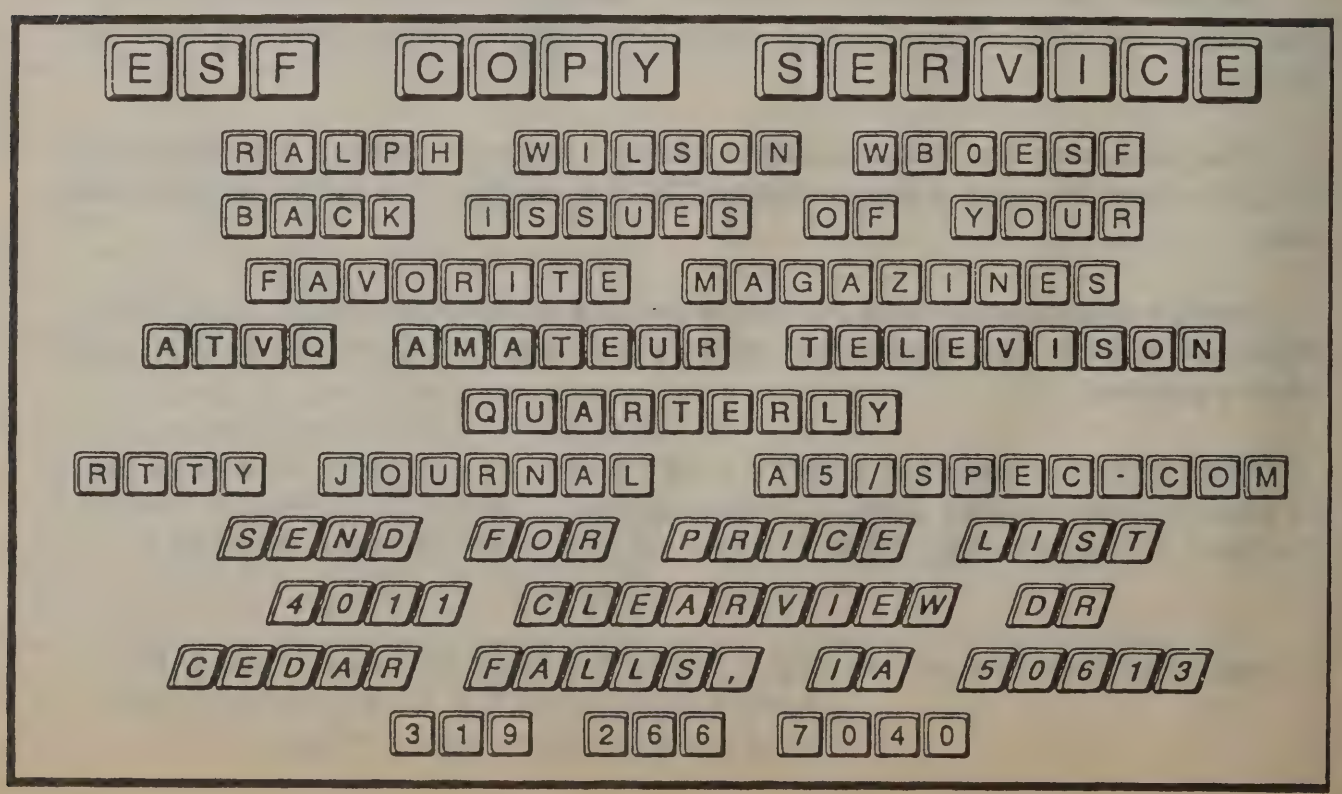
Big St Louis Meeting

I have pondered for weeks on how to report the happenings at the BSM. I have over 140 pages of text and six hours of video tape of the event. It was about ATV and it wasn't about ATV. For those of us who have been on VHF long enough to remember the 1965-1975 period, deja vu. Who was there: Nearly every ARRL big wig you would think of, directors, general council, honchos. Mr. Ralph Haller of the FCC, and about 65 others from the ham community. Not a general sampling, mostly MACC officials and T-MARC officials, a couple from SERA, a few state repeater council members, a few digital folks, Bill Pasternak of Westline, and me.

The agenda that was published and circulated several times before the meeting had nothing to do with the actual meeting. What I have read and heard in the ham press has little accuracy to what actually transpired. Anyone who wants to send a T-120 and postage can have a copy of the six hour video tape (shot on hi-8) and judge for yourselves. While there I did meet with two state groups who wanted to discuss ATV problems. This we did. My suggestions were (exactly) to meet with the ATVers in their state, and work out a solution that would satisfy both groups. I also suggested (exactly) that rather than bulldoze the ATV'ers into a corner, that they might get further if they offered HELP to the ATV groups since it is very expensive to change/move an ATV repeater compared to an FM repeater. I hope they went back home and acted on the advice.

I will surely get lambasted on the internet/remailer again (even Howard Stern could not repeat what has been going on the repeater re-mailer and the internet between the various FM groups and coordination councils) as a League basher (and worse) but, is it possible for the ARRL to ever deal in a straight forward manner on any topic, or do the always have to hide behind secret agendas and closed meetings, secret mailings and even more secret hand picked committees? Most ideas start with someone expressing the idea. It gets talked about. Gains momentum or dies. But it does so in the light of day. People express their positions and stand behind them. The whole St. Louuis proceeding smelled of a fix. The ARRL does not spend (my estimate) $6,000 to fly a huge contingent to



St. Louis, stay at the Marriott (while the meeting is in a cheap motel) just to "get input about the idea of a Single Point of Contact" with Ralph Haller of the FCC on hand to address the group, unless they have a specific agenda in mind, or a deal in the works with the FCC.

Mr. Newshound (who doesn't want to be named in print) says, "the FCC and ARRL had a chat in Miami where the FCC promised the ARRL _____ in return for the ARRL getting the FM mob to produce a SPOC so the FCC doesn't have to deal with the FM mob anymore. The ARRL does not want to be the SPOC because of the liability (law suits from disgruntled coordinations) involved." In the agenda letter, it says the FCC requested the meeting. When a delegate from the Indiana Repeater council asked Mr Haller, he said the FCC did NOT ask for the meeting. There are a lot more discrepancies, or "interpretations" of prior and post events both on tape and in writing. According to Mr. Haller the system (coordination) isn't broken, works rather well, but he is open to any comments (except those requesting specific rule changes) about how the FCC might help things along. So you have to ask, why the high power meeting with the ARRL brass?

ARRL Director Marshal Quiat moderated the first half of the day, and the audience fielded a few queries. The most out spoken was MACC & T-MARC which said all they wanted was "teeth" for the coordination process. Translate this to: We want to be God of the airwaves. Don't dare question US! They also wanted immunity from the consequences of their coordination action: "will the FCC provide the SPOC with immunity from law suits?" Answer: "NO!" Thank goodness for something. The Wisconsin delegate stood up and began what sounded like a practiced speech, to which ARRL director Quiat prompted him along from point to point before he got the idea he should sit down and wait for his cue. Nothing like giving away the plot!

Not satisfied with the results, the ARRL/FCC lunched together where Steve Mendelson, ARRL director, promised the rest of the meeting would be different and the ARRL decided that Dick Isley, MACC president should moderate the afternoon. Actually Mr Quiat and Mendelson said that in my car as we went to the restaurant. The ARRL spent lunch largely making jokes about the congress, hams, and OJ Simpson.

The afternoon was spent deciding on a committee to write a position paper. Thirteen people were nominated/volunteered to be on the Committee. Without any discussion Mr. Quiat changed that to a committee of 5 to be elected from those attending the meeting. MACC members out numbered all others at the meeting, so it was no surprise that MACC controls the committee of five. So the outcome is five people will write a memo of understanding about SPOC, and following the vote to make SPOC an arm of the ARRL, adjourned. Several folks at the meeting were not happy about this. SERA and the Indiana group most notably.

Now the secret bashing began. The phone lines should be melting from the internet chat. The group of five will have a closed meeting, likely in Texas, while MACC president Isley flies around getting new states to join MACC, so they can become the SPOC. I met the Indiana group for the first time after the meeting and you could roast hot dogs on their steam. This was further displayed at the Ft. Wayne hamfest where Mr. Isley was in attendance at the Indiana Repeater Council meeting. I was there to join IRC and participate as a repeater owner should a topic arise of interest. I left early. The sparks between the MACC/Isley and IRC would burn Chicago to the ground.

As a reminder, Illinois/Isley was the first state to announce they would go along with the MACC recommendation to eliminate ALL ATV from the 70 cm band. Not bothering to note that the FCC is the only body which can determine what modes can be used on what bands. At Ft Wayne Mr. Isley stated that he only wanted to remove in-band repeaters, not ATV. Well, that's isn't what the MACC minutes said (printed word for word last issue) and it isn't what the Illinois Repeater association newsletter said. So who's zooming who?

Like I said, it stinks all the way to the East Coast. Keep in mind the ARRL has always professed that it is NOT in the coordination business. Now go read 97.303! But here they are, SPOC and all. Want another laugh? Mr Newshound says the entire coordination community (can you define that?) thinks I am controlling the Indiana repeater council in their fight with MACC. WOW What power we ATV'ers have! Pay $8 to join the Indiana Repeater group, go to one meeting, AFTER the St Louis meeting, and the 70-80 members present at the IRC meeting who voted unanimously to support their officers, are

CONTINUED >>>>>pg 44

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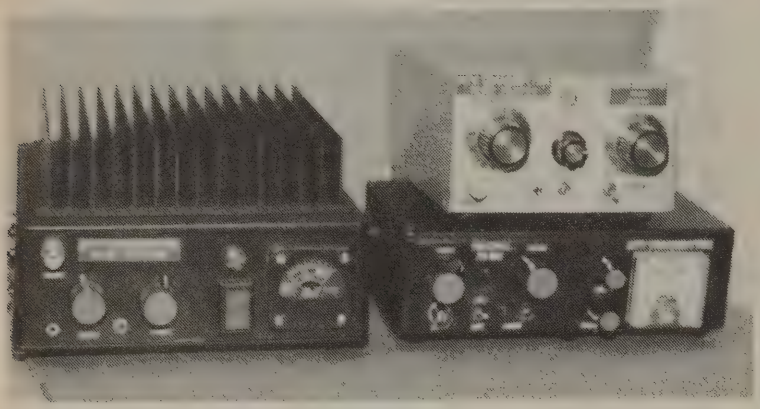

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The W6ORGy NOTES

DAYTON 96

After 18 straight years at the Dayton Hamvention, Maryann and I are taking a break and letting one of our dealers, Ed, WA6BFR, of Micro Video Products have all the fun. Ed specializes in R/C ATV and has a line of small cameras. So drop by booth 355 to see the P. C. Electronics ATV gear and Micro Video Products cameras and R/C stuff.

I have asked Bill Parker, W8DMR, to moderate the Hamvention ATV Forum. Bill has presented the ATV basics and other subjects many times at the forum and always did a great job bringing the material to the group by using graphics and humor that made it informing as well as entertaining. I am sure Bill will keep the tradition of presenting a balance of ATV subjects and speakers of interest to the new ATVer as well as the experienced.

We have a time conflict with the Hamvention shift to mid May also the increased costs. It has also been tough to get the extra production built, tested and shipped to Dayton that we are somewhat pooped out at the start of the show. We want to keep our reputation of always having shelf stock and shipping within 24 hours of a call even during April and May, but Dayton is like three weeks of sales in three days.

MIRAGE AMPS

Production of the Mirage amps moved to MFJ in Mississippi at the end of last summer. But to date, none of the 440 band amps have come out of their production line. As one would expect they are first concentrating on the higher volume 2 meter amps. I don't know where the 440 products are in their priority list, but every time I check they say four weeks. So after one of these four weeks I hope they will be flowing out of the production line again to anxious ATVers.

For some reason MFJ has decided to charge $20 more for the D1010N ATV version amps. I don't know why this is since it only entails not putting in the feedback network from base to collector across the MRF648 finals - it still works fine in all modes. It may encourage buyers to get the RF Concepts 4-110 instead, or the standard D1010N and remove the feedback network themselves. There is a sticker across the heat sink and cover that if torn voids their warranty. So is $20 worth the risk?

The series resistor, capacitor and inductor feedback network was originally put in to cut the low frequency gain that caused an oscillation that burned out the transistors. This feedback network also greatly distorts the sync, sound and color in ATV. To prevent the low frequency oscillation, but still pass video, a 50 ohm 10 watt wire wound resistor was added just after the collector output coupling cap. This resistor keeps a 50 Ohm load at low frequencies but at UHF, being a wire wound, it looks like an inductor.

NEW RF CONCEPTS 440 MINI AMP

I checked out a new low cost Mini Amps for ATV and found that as is they work OK, could use a 100 mF cap added on the +13.8 input inside the unit to remove a little sync distortion, and a .01 disc added in parallel with R1 on the RF T/R sensing to keep the relay from chattering with predominantly white video. The amp uses a single Motorola MRF644.

Out of the box at 439.25 and for one watt in I got nine watts out. After this point the gain compression starts curving over. 1.5 watts in gave 12 out - would be 13.5 if straight line linear, but your sync stretcher can easily handle that amount and even up to its rated 20 watts at the sync tip. The amp is made for 438 to 450 MHz but by fine peaking C4 and C5 at 439.25 MHz I could get 18 watts out with 1.5 in. I also checked the output repeaked at 426.25 MHz and came out close to that at 439.25 MHz.

Pin	Pout	Ia
1.0	13.5	2.5
1.5	18	2.8
2.0	23	3.0
3.0	27	3.3
4.0	32	3.5

The Mini-Amp 440 is rated at 3 watts in and 20 watts max out +/- 1 dB. Max input is 5 watts before you blow it. Input for automatic RF sense T/R switching is .8 to 5 watts but mine dropped out at .25 watts CW. With normal camera video on an average grey picture, there is no problem keying up the amp with one watt pep. But a predominantly white picture will make the T/R relay chatter. The easy solution is to put a .01 disc cap in parallel with the 470 pF (C1) RF filter cap on the diode detector output. This smooths the detected video waveform and stores enough energy to keep the relay pulled in, but not large enough to in anyway affect the turn on or turn off times significantly.

Set up is the same with any amp - with no video connected, turn the pedestal pot for maximum power output. Note that power and multiply by .6. Reset the pedestal pot

for this calculated power. Don't over drive this amp, say above 20 watts pep, because even though your sync stretcher may have enough range, you can flatten the sound riding on top of the sync and reduce the color burst.

The 100 mF and .01 mF caps can easily be added by removing the three screws that hold the bottom cover and front panel. Remove the cover by sliding forward until free of the push button switches. I soldered the + side of the 100 mF to the fuse solder pad on the board and the ground lead to the anode side of the 1N5402 (D4) reverse protection diode. The .01 mF solders across resistor R1, a 10K. The manual is quite complete with schematic and parts layout. However, they did leave off all the ground symbols on the schematic for some reason.

The standard mini amps come with SO239 connectors instead of the usual type N's used on 420 MHz and above. PL259's are OK at 70 cm if made correctly. If they are thrown together by folding the braid back and then just screwing the connector over the cable, you can have a high vswr at UHF. The braid has to go all the way up to the end of the dielectric and be soldered through the shield holes. They will supply Mini-Amps with N connectors if ordered special for a few extra bux.

Duty cycle is listed as 50% and not for repeater use, but a percentage is somewhat meaningless. Does it mean one minute on one minute off or one hour on and one hour off? A better rating method would be an actual time on and time off at maximum rated power that would be the worst case. I put a temperature sensor on the heat sink and ran it for a half hour and with the rated 20 watts CW output. The temperature only went to 118.5 degrees on the fins and 123 degrees F on the Motorola MRF644.

I see no problem running long periods at 20 watts pep ATV since there is free air around the heat sink. If you do run it more than a half hour, such as for some public service events or you are one of the chronic long winded, a fan blowing some air across the fins should suffice. There is no thermal cut off so I don't know what to suggest if you go over 1/2 hour or run it saturated on FM voice except to turn it on and do the finger test until you cant stand it - that is usually 130 degrees F unless you are a masochist or under the influence.

I did not check out the preamp because most all ATV downconverters have more than enough gain and lower noise figures already - the Motorola MRF5812 used in the 440P preamp version has a rated noise figure of 1.8 dB. Preamps are best put at the antenna, in my opinion, which will both compensate for any loss through a power amp, but more important, the coax loss that is likely to be higher. So P. C. Electronics will be stocking the mini-amp 440 with N connectors and without the built-in preamp.

The RF Concepts Mini-Amp 440 with SO-239 jacks is $119.95 and with a receive preamp, the 440P, $139.95. A nice little inexpensive amp for those with 1.5 watt ATV transmitters or 440 FM HTs that need almost another 2 P units or four times the distance.

MR. SPOC and the 420-450 MHz BANDPLAN

At some point when the dust settles over this Single Point Of Contact (SPOC) between the amateurs and the FCC, a new 70 cm band plan should emerge. The ARRL Spectrum Management committee is now gathering information on the band usage. ATVers must respond with their participation to the right people if we are going to operate this band in the future. If a person or small group becomes the "Mr. SPOC," how will they see the band. If they have no experience with ATV, and hear very little from ATVers, don't be surprised if their particular mode will take priority.

Remember, we need 6 MHz wide channels. All any SPOC blessed coordinator has to do is place five other systems within each of the five possible 6 MHz slots in the 420-450 MHz band and the ATVer would be in violation of interfering with a coordinated system. At the very least the video would be torn up. Sure we could move off our few long time rock bound channels and have a power war, but ATV is much more susceptible that other modes, and eventually it would turn most people off. So what we as a group have to push for is a sound technical band plan that we can all live with, and the SPOC's can administer. With 30 MHz of spectrum to play in, even the high communications density areas should be able to work it out.

The ARRL 420-450 MHz band plan did not have technical review. Back then, 1978, Joe Reisert, W1JR as chairman of the year old VHF/UHF Advisory Committee (VUAC) was asked to poll his members and come up with a recommended non-interfering band plan. When he did this, he got very little response. Basically the VUAC members, including some ATVers, just said what they used and thought that would be OK and listed the three frequencies. That was compiled and presented to the ARRL Directors for approval. The band was little used in those days so most of the VUAC members only knew what was going on in the mode and frequency they used, not how it would be affected in other areas of the country if by some miracle a special skip layer energized and everybody could hit everyone else with their RF. No, I won't mention the fact that in

the pre-synthesizer days, before anyone would change frequencies they would have to pry your cold dead hand off the crystal.

For instance take the 439.25 MHz ATV channel. It is easily understood now with the increased number of FM voice repeaters that 442 to 450 MHz, especially with high in and low out, will wipe out any ATVer if below 444 MHz. But back then, most areas of the country did not have any repeaters on the band and there were few ready to go, if any, ham 440 transceivers available. You either converted a 450-470 MHz transceiver, kits or home-brew.

Put yourself in the shoes of the FMer looking to put in some linking, the band plan below 433 looks like it is all ATV. 421.25 and 427.25 MHz are shown as TV channels. Today, with coordination, they know that a carrier within either of these two channels will interfere with ATV and some ATV sidebands will interfere with them. Again the ATV channels are listed as what was used by a few in the 70's and corresponded to cable channels. What was not explained is that only one of these two lower channels can be used in any given area. The other 6 MHz segment can be used for up to 120 links or whatever else if the frequencies closest to the ATV channel are high site inputs or lowest power. The reason you can't effectively use adjacent TV channels over the air like cable does is that the TV set cannot reject the adjacent channel if it is stronger. That is why broadcast skips a channel in any one area.

So what do we push for in the band plan? First it must be put together by representatives from all modes who really know the technical characteristics - not just a few, even if well meaning, from a few modes. They must know not only the occupied bandwidth but the spectrum power density of the signals, frequency tolerance, drift, and interference susceptibility of present day equipment. How else can one determine the channel spacing.

We found that out during the 1200 MHz band plan meeting which did have technical representatives from all modes. There were many that did not know Carson's rule for FM occupied bandwidth and were willing just to go along with Icom's 20 KHz spaced channels. Standard FM voice occupied bandwidth is 16 KHz with 5 KHz deviation and up to 3 KHz audio, but you also have to add in frequency tolerance and drift to make sure the adjacent channel will not be trashed. Icom's frequency stability was stated at .+/- 5 ppm or 6 KHz. That could put a transmitter sideband 2 KHz into the adjacent channel if it was set perfectly on channel in the first place. That is why the group came up with 25 KHz channel spacing. The 12 MHz spacing instead of Icom's 20 MHz was agreed to not only to accommodate ATV channels but also duplex FM links in the lower 20 MHz of the band.

Again, an expert in one facet of Amateur Radio, will probably not have the experience and ready knowledge to technically decide a band plan for all other modes, not to mention a bias. What works is to have members from each sit down together and reach a consensus. All must agree at the outset that no frequencies are cast in concrete for anyone because that is what they or most people have used in the past unless there is good sound technical reasons. No one facet is more important than any other because there are no FCC Rules that permit value judgments by frequency coordinators. See 97.101(b) and (d). Obviously each of us thinks our particular facet is more important, but must work with others.

Bill Tynan, President of AMSAT-NA, in his comments to the NTIA on 2400 MHz wrote that ATV is 8 MHz wide and that there are no commercially available ATV rigs above 450 MHz as a reason that satellite users on 435-438 MHz are being interfered with and need space in the 2400 MHz band. We all know he is wrong on both counts, but this has been picked up and believed by other mode users that naturally would want ATV off 70 cm and moved up to higher bands after reading that. It is interesting to note in another part of the comments he says satellites can accept Part 15 license free intentional transmitters but probably doesn't know that except for the color subcarrier, this is close to the levels in the camera video sideband energy in the 435 to 438 segment from 434.0 and 439.25 10 watt ATV transmitters and camera video.

If ATV is tearing up all these satellites, we surely would have heard about it. I don't know how many new members AMSAT-NA gets a year but I would be curious to know how that compares to ATVers. I get about 1000 new ATV customers a year and most all get on the 400 MHz band first. Some are satellite users that already have antennas and amps and want to try other modes. Why let a few make it a them or us situation when a little cooperation lets us all enjoy any mode. I bet AMSAT-NA would love to have ATVers join them and try out the satellites and especially help scrape up enough bucks for Phase 3B. A little cooperation could help both of us.

We have had 900 and 1200 MHz band gear and advertise it in all the major Amateur magazines since 1988. I don't know where he got 8 MHz from but I hear it being

quoted by those who fear sync buzz in every radio in the future. What counts is ATV transmitted sideband power density as far as interference potential to others. ATVers are the ones that have more to fear with our 6 MHz wide standard broadcast channel TV sets. ATV occupied bandwidth, as defined by 97.3(8), with either DSB or VSB is less than 2 MHz with the video plus two narrow sound and color subcarriers that are at least 15 and 22 dB below the carrier.

The bottom line is a sound technical bandplan must precede any SPOC or frequency coordination body with FCC backing and that is what we as ATVers must push for. Push your ARRL directors to insist upon technical review by the ARRL Technical Advisors of any band plan before it is presented to them for adoption. FM voice frequency coordinators generally do not want to be concerned with whole band spectrum management or other modes. This is fine as long as they coordinate within the technical limits of a sound agreed to band plan. There is no reason each mode cannot have their own coordination group within a single technical band plan.

SOME TECHNICAL CONSIDERATIONS

In the 420 to 450 MHz band ideally ATVers need two channels separated by at least 12 MHz. 12 MHz is needed if a local area decides to use the two channels for an inband repeater. This is as close as you can get so that the VSB filter slopes have enough rejection. It also allows plenty of rejection in the TV set for areas that use one for crossband repeater and the other for simplex - you could go down to 10 MHz like the odd case of channel 4 and 5 separation.

421.25 is fine for repeater outputs because repeaters have to use VSB filters anyway. Requiring the amount of VSB rejection for simplex or repeater input users is cost, weight and size prohibitive for many applications. The standard VSB filters available have only 15 dB rejection of the LSB sound giving a total of -30 dBc. Many repeaters also have to put notch filters in addition to satisfy government users below 420 MHz. With 421.25 MHz ATV, 426.0 to 431 can be used for 120 25 KHz spaced link channels with 3 MHz duplex link separation - one of the commercial standards below 420 MHz.

426.25 MHz can also be used for simplex or repeater with no special filter requirements, but reduces the link channels to 5 MHz or 100 25 KHz channels. This has been one of the most popular secondary simplex channels with least interference potential to other users or legal restrictions to color or sound sidebands. Many R/C and point to point public service ATVers use this frequency for this reason. This frequency is fine for crossband repeater but for inband only 439.25 has enough separation. 434.0 can be used in the same area for simplex or crossband repeater but depending on large signal strength differences which the TV cannot reject they could interfere. It has not been a problem here since the simplex station is not pointing their antenna at the repeater or is very close.

427.25 MHz ATV would allow 120 link channels between 420 to 426.0 but technically prohibits repeater use unless the sound subcarrier at 431.75 is not used. It has been coordinated in some areas and I have not heard of any interference to weak signal users. I would like to hear comments from anyone that has. Southern California recently had a mini band plan meeting where the weak signal representatives said they could live with digital users up to 431.6 MHz. With the recent FCC rule change that said packet store and forward on the same frequency is not a repeater, we were able to change our local band plan to give the digital community 431.0 to 431.6 MHz.

434.0 MHz is now running about the same in sales as 439.25 as the frequency to change to when too many FM voice repeaters come on. Interference from satellite users will wipe out the video so it depends on their signal strength, beam angles and activity when satellites are in view. Something we have just had to live with. The only significant energy in the 435 to 438 satellite segment is from the color and sound subcarriers that is quite low and I have not heard of any actual interference to satellite users except at conventions where there is intermod and overload everywhere, or a miss adjusted ATV transmitter - again I'd like some input from those with first hand interference reports. The color subcarrier does not fall on a presently used or Phase 3B frequency. Technically 434.0 cannot be used for repeater unless the color is not used or suppressed another 4 dB if you go by the bandwidth definition in the FCC rules. 433.25, cable channel 59, was not chosen because significant sideband energy might interfere with weak beacons between 432.3-.4 MHz. ATV sidebands are down more than 30 dB +/- 1 MHz from the video carrier so nothing should be within that 1 MHz. See the spectrum analyzer picture in the ARRL Handbook figure 12.61.

439.25 MHz is the most used frequency by ATV DXers especially in the Midwest or east. It is also the

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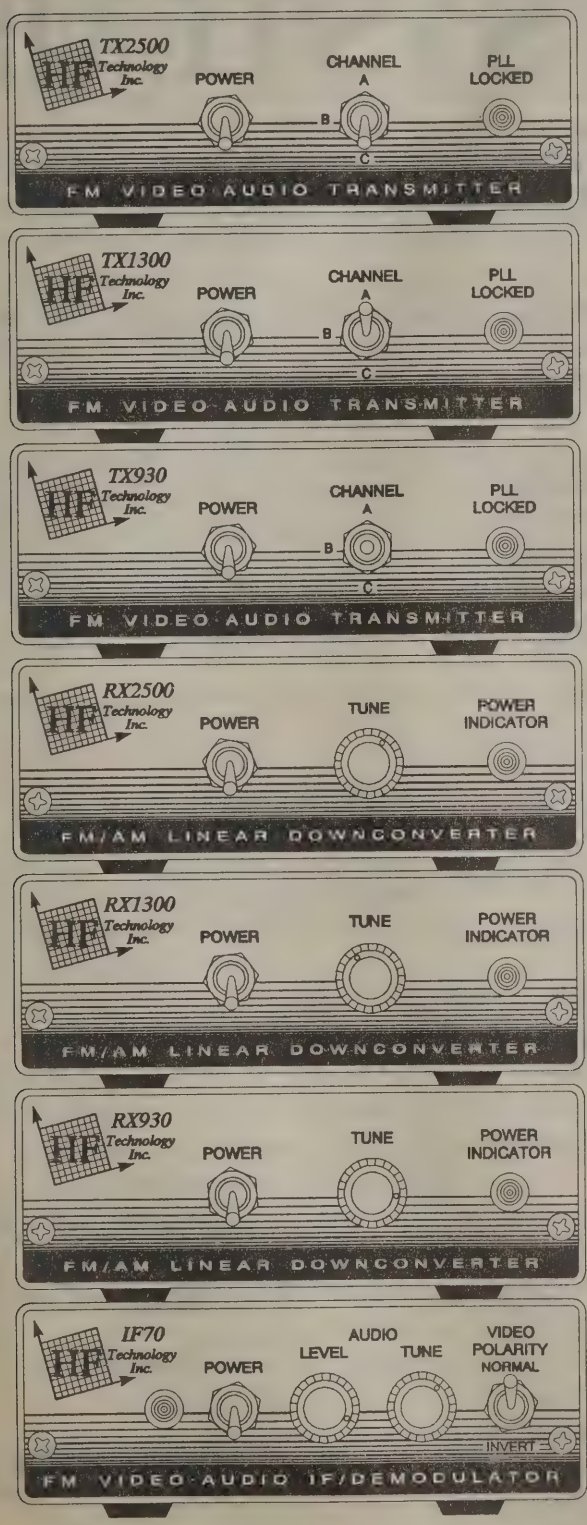

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- The only FM video-audio IF / Demodulator specifically designed for FM amateur television use.
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Call or write for complete specification sheets, ordering information and current pricing on these and other products.

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The cost of a complete 137 MHz System is $886.00 ($249 + $637)
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only puppets of ATV. Of course SERA also does not like what MACC is doing or SPOC. I have never been to a SERA meeting and have met their officials for the first time AFTER the St. Louis meeting. So I must be using remote control. This is sick.

If you think I used too strong a language to express my disgust with the Little Macc Attack, you certainly don't want to read the stuff they are saying about each other and about ATV on their "secret" remailer. (You have to put it in quotes because they say the remailer is only for the eyes and knowledge of the repeater coordinators, yet ARRL Director Mendelson shared the communications with ABC personnel, (why?) and the leaks from other members to the press makes Watergate look silly. Sick sick sick. Since when can ham radio business be only conducted in secret? Since it is on the ARRL agenda to do so. Keep in mind these are the "leaders" of the ham community. Save us before we all die laughing. Hopefully I will be retired in 20 years and won't have to put up with the outcome of the secret committee, secret agenda, secret deals. Watch this space for future news. 73 Henry KB9FO.

HAM PIONEER DIES

It is with deep sadness that we report that Dave Williams WB0ZJP died of cancer on 12-8-95 at the age of 42. Dave was a long time ATV'er, who also worked DX on the VHF, UHF and microwave bands, and served as a corner stone of activity and technical wizard in the St. Louis area. Dave was also one time holder of the ATV DX record. Dave also served as photo editor of ATVQ providing half tones from photos and photo editing work to help ATVQ look professional.

Dave was a good friend and a friend of many hams. His passing is a dark day for ham radio. Dave was a pioneer in many bands and modes, building equipment to operate on bands where commercial equipment would not be available for 20 years.

Dave passed quietly while friends and family were present. He is survived by his wife, Shelly and thousands of ham and non hams who knew and loved him as a friend.

W6ORGy NOTES

most ideal frequency for inband repeater input with 421.25 output for the most separation, or output with 426.25 input when FM repeaters wipe out the input. Some have also switched to favor the lower VSB. This puts the passband in the satellite segment like 434.0.

So talk about the frequencies in terms of least interference potential with the other ATVers in your area and figure out what two you want to push for. Try to not let what you already have in your rig or repeater now overly influence you but what would best fit given the expansion of FM and packet and what you all can live with.

Don't be afraid to suggest tests to verify the fears others may have. We had to do that here with the Satellite people. Dr. Norm Chalfin, K6PGX, of the Jet Propulsion Lab Radio Club flew an Oscar prototype in a private aircraft flown by N6BH to simulate a satellite pass. ATVers got on 434.0 with their video and aimed at various satellite receiving stations. No interference was noted except one that was less than a mile away so we decided to handle those cases with known two meter coordination channels and it has worked fine in the greater Los Angeles area ever since. It doesn't have to be a war or who has more right to the band than another.

We need ATV on the 420-450 MHz band because it goes farther than the higher bands. This is especially true for the emergency service groups that use it for remote damage assessment and Sky Warn. 900 MHz goes half the distance as 440 MHz given the same power, antenna gains, noise figures and coax loss. 1200 about 1/3 not to mention the cost increase. So it is not a matter of "why don't you go to the higher bands that are not used around here" - yet.

One of the best ways to keep in touch during the coming troubles is on the Doug, KD4MOJ's ATV exchange remailer on the internet. If you have access to Email through any of the on line computer services - AOL, Prodigy, Compuserve, etc. - it won't cost you anything to subscribe to Doug's remailer except what ever it now costs you per message or time through your service. Anything sent to the net is automatically resent to the list. It is great for asking ATV questions and finding out what other ATVers around the world are doing. To add yourself to the list just send a message to: LISTSERV@talahassee.net It doesn't matter what you put in the subject line. In the text part of the message just put the words: SUBSCRIBE ATV Nothing else, and that will do it. If you want to send a message to the net address it to: ATV@talahasse.net I'll be watching for you on the net, 73, Tom O'Hara, W6ORG tomsmb@aol.com

VIDEO CAPTURE WITH VGA TO NTSC CONVERTERS

A couple of years ago, a video capture board would have cost over $1,000, but today they are becoming more and more affordable. I found one at the "CompUSA" computer store in Columbus, Ohio for $229. This particular board called PC PrimeTime seems to appear in a lot of places. Here are some of its features:

o TV on the PC! That's right! It has a cable ready tuner which means it can receive cable channel 58 (427.25 Mhz as well as all amateur 440 mhz tv channels. It also has video inputs for a VCR / camera.
o Thirty frames per second, 2 million colors video capture - this means you can record your own video clips. Beware: it takes a lot of disk space to store these clips but they are NEAT!!
o Full screen playback of Microsoft Video for Windows and video clips is provided. Usually, programs that supply such video clips provide a very small 2 inch by 3 inch (or so) picture on your PC video screen.
o Onboard Hardware video compression engine.
o Scalable, movable video window - move window with video source anywhere on screen and any size.
o Capture, save and print images - what you capture you can put into a document. And, if you've got enough memory, you can capture seconds worth of live action video that you can then re-transmit!
o Graphics overlay with chroma keying.
O Stereo Audio amplifier.
o On-Screen Remote Control.

You must have Windows 3.1 or greater to use it. It will not run with Windows NT, but I do have it running with Windows95 in only 8 meg of memory. You need to be in a 640 X 480 VGA mode to use this particular board. You will notice a definite difference in price for the boards that work in resolutions higher than that. However, in my case the VGA to NTSC card only works at 640 X 480 so I have to leave my Windows in 640 X 480, but lately that's ok! You see, I've been wearing those @#!@ bi-focals for about 5 years now — and I just can't see those small screens well anymore!

The board must connect to the "feature connector" on your VGA board which is a 26-pin connector on the board. A word of caution to any of you who are considering the purchase of a Pentium... Most of the video capture boards I have seen require connections to the feature connector on the VGA board. According to the technical people at PC PrimeTime, these boards won't work on PCI video because some of the signals that used to be present on the feature connector are now part of the PCI bus. However, you can still run your video off an ISA bus slot on your pentium. What we must give up for ATV!

In order to transmit my PC video, I bought a Creative Labs "TVCoder" board which cost me about $160. Now I have three boards in my computer just for video! There are some on the market that do all three functions (with the exception of a TV tuner) but if you're like me and want to get there in pieces, this is good way to ~o. I hope this helps anyone who might be interested in video capture!

Bob . . . KF8QU

MORE VIDEO VGA TO NTSC CONVERTERS
I've found additional sources for these converters. If anyone has further info, let me know so I can pass it on.

MultiPro CTV - An external converter with VGA input and VGA, S-VHS, video and audio outputs. It supports 640x480x16.7 million colors interlaced and non interlaced modes. Has freeze, scan. RF output on ch 3/4.
Its available in the Columbus Ohio area at Microcenter for $249.00

AVer Key - An external unit similar to unit above. Supports windows 3.0 up in all modes up to 640x480. Input is VGA 15 pin with output NTSC composite, S-VHS, video RGB and VGA RGB.
Available from JDR Microdevices ($179.00) or Jameco ($169.00) both in the San Jose, California area.

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World-Leading Digital Technology Slated For New Broadcast Standard

WASHINGTON, Nov. 28 — The FCC Advisory Committee on Advanced~ Television Service (ACATS) today urged the Federal Communications Commission to adopt technology developed by the Digital HDTV Grand Alliance as the new digital television broadcast standard in the~ United States.

Marking one of the last steps in an eight-year process toestablish a U.S. advanced television (ATV) broadcasting standard, the~ 25-member blue-ribbon ACATS panel recommended the new standard to the FCC, overwhelmingly approving ~he results of extensive laboratory and(field testing of the world-leading digital high-definition television (HDTV) technology. The ACATS — which is comprised of senior executives from the broadcast, cable, telephone, consumer~ electronics, computer and entertainment industries — also reaffirmed technical specifications documented by the Advanced Television Systems Committee that will provide the basis for the new standard.

"This is a landmark day for many communications industries and, especially, for American television viewers," said Richard E. Wiley, ACATS chairman, who has led the Advisory Committee's efforts since (1987. "At hand is a quantum leap in both quality and flexibility that will enhance greatly television's ability to educate, inform and(entertain us."

The broad-based benefits of the Grand Alliance system — bringing~ largescreen high-resolution displays and a 19 megabit-per-second(pipeline of data (in the same amount of spectrum as today's analog(low-resolution TV) into American homes — "will deliver the promise of digital HDTV," Wiley said. ``Equally significant, the new standard will assure the United States continues to lead the world in digital television technology,(with a highly interoperable system that will provide tremendous flexibility for future digital applications in addition to HDTV's stunning pictures and sound," he said.

The final technical report approved today by the Advisory Committee concluded, based on intensive laboratory and field testing, that the Digital HDTV Grand Alliance's digital television system is superior to any known alternative system in the world, better than any of the four original digital HDTV systems and surpasses the performance objectives of the ACATS.

Wiley applauded the efforts of the Digital HDTV Grand Alliance in developing ''truly world-class digital technology for America and the world." He also thanked "the hundreds of participants in the Advisory Committee process for volunteering thousands of hours over the years."

The Advisory Committee, which was formed in 1987 to recommend a new HDTV broadcast standard to the FCC, has conducted an open, industry-driven process that promoted the development of all-digital televison.

IMPACT ON ATV

How often I have heard, "Why don't you ATV guys go digital and conserve spectrum?

Until you can go down to the local store any buy a cheap digital TV receiver, the chances of ATV converting to digital, HDTV or otherwise are mighty bleak. Besides the cost of special chips to generate MPEG or other formats, there is little interest in the ham community to spend thousands of dollars designing a system which no one can receive. Dick Isley (MACC President) said at the Ft Wayne meeting there is a chip set we can get to go digital. Dick, send me a set, as I have yet to see one. This is the fairy tale of the FM people. FM people seem to think we send SSTV or computer images on voice grade lines. The people who think we can simply go digital do not have a clue about reality. First, it took the combined resources of the countries best technical companies and engineers to design a digital system which would even fit in a standard broadcast channel width. Resources no ham has. It also took tens of millions of dollars, again a resource none of us have.

ATV'ers are not content with low resolution stills, or computer mini movies. We use and enjoy full broadcast spec TV. It provides more information than any other mode of communication on a data/bandwidth basis. TV is already compressed spectrum. Interlace reduces the spectrum by 1/2. Color subcarriers and audio subcarriers reduced occupied bandwidth by another 2 MHz. TV is alrady on frequencies which are shared with many other modes and users. FM repeaters share spectrum and usage with no one. They are already on EXCLUSIVE assignments. TV repeaters also share with simplex operators, no so FM repeaters. SO who is the spectrum hog? FM REPEATERS. They use 60 KHz to send less than 3 KHz of information. KB9FO

IF YOU ARE ONLY TALKING ON YOUR HAM RADIO, YOU ARE MISSING THE BIG PICTURE

I hate editorials too, but I decided to write one anyway.

But we are all following the technology that is available at the corner store.

To those of our readers who are only interested in technology and projects, you will likely think this is the worst issue ever. For those of our readers who want to be informed and want information on the paradigm shift going on in ham radio, this is likely the best issue you have ever read. Besides, the technocrats have failed to supply any technical material for several months so there was nothing in the IN box in the way of projects for this issue. This is not new. Ham Radio magazine faded out, partly because of the lack of interest in technology.

Hams have been diverging from one tube radio circuits, 160 AM, and other ancient items for a couple of decades. The new hams have interest in computers and packet and little in the "conventional" ham radio areas. Heathkit faded out because people in general were no longer interested in building what they could buy for less. Manufacturing and technology have placed the basement workshop in mothballs.

As hams we do not have the resources to keep up. How many of you can make your own ICs? Multi layer PCBs? CW has become the hobby of the ardent and curious. SSB has not changed since it was invented. FM mode has continued to plod along behind the commercial gear manufacturers. There is no reason why an FM repeater could not use 15 KHz wide "channels" vs the 20, 25 or 30 KHz used. Packet could easily more than double their available channels by reducing deviation on their FM links to 2 KHz which is within the limits of baud rate and Nyquist numbers.

FM Repeaters could easily be replaced with linear transponders that would not be limited to FM mode only, and allow the "hill" to be shared by several groups rather than one or a handful of repeaters. If someone made a new video receiver transmitter camera we could change as soon as we could afford to do so. SSB repeaters are as technically viable as FM.

If Icom, Yaesu, Kenwood, Standard, etc don't make it, we largely are not using it. ATV will not be any different in 10 years than the equipment offered for the mode. If we want ham radio to grow beyond the bounds of current (obsolete) technology, the reality is we will have to convince the manufacturers of our toys to make it. The leaders of ham radio have never taken this bold step to truly be in the LEAD.

A few entrepreneurs make a skeleton of special items, and often fade from the scene as their hopes of making a market vanish in the reality that no one is marketing anything to hams. The last big marketing effort was the no code license. Kicking and screaming ham radio was dragged into the proposal. The controversy is still not over, but the reality is there are about 200,000 no-code hams. The no code technicians are the biggest segment of this hobby. THEY will determine the future of ham radio more than the FCC or ARRL or FC's or RC's.

Computers deal in digits. But we interface with them in video. (or perhaps you have a braille readout VGA monitor?) Video capture and manipulation of the information is as easy as word processing. Those with "Toasters" and other video editing systems know that the most rapid, expedient, efficient and aesthetic way to change video is in the digital domain. My new all digital TV station does it on a grand scale, but the entire system of eight digital editors, mass storage, players, recorders, cost less than a simple 3 machine edit suite in analog equipment. About a half million dollars. Individual broadcast quality systems sell for less than $40,000 and home systems well under $10,000. The inter net will allow the exchange of home produced videos between users and between users and net viewers (attention Nelson, can you measure the HUT on the inter net yet?) bypassing much of the conventional broadcast cable medium. Where it goes is a matter of COST, not technology.

IF YOU ARE ONLY TALKING ON YOUR HAM RADIO, YOU ARE MISSING THE BIG PICTURE

We watch broadcast TV because for about $200 we can buy a color TV set, plug in an antenna and receive a bunch of channels of entertainment, news, information, etc. Those with some money to spend do the same with CABLE TV, paying a monthly fee to see what they had for free. A little more money and you can buy a satellite receiver and play a fee or watch the free channels. Likewise the computer literate are buying time on the "net" be it the WWW, AOL, CompuServe etc. The days of when a publication or TV network had a lock on information or entertainment has long ago died. Each is serving a niche market as best as they are able to define it. Who knows, maybe we will see the Yodeling channel Yo da la de ho, or the quilting channel, the pet rock channel, (taking it for granite).

The point is, all the arguing over frequency use, modes, SPOC, ARRL, FCC, FC's etc is so narrowly focused that it misses the point. There are a multitude of "channels" for information and entertainment and hobbies. Some happen to be on airwaves reserved for hobby purposes: ham radio.

By law, no one and no coordinator can determine who gets to use the information channels. All those licensed can participate. If the idiots who want to play politics or be God of the airwaves don't get the message that WE DON'T WANT THEM REGULATING a system which is already working well, we will have a hobby that will terminate into one or two areas and the rest of us will seek satisfaction elsewhere. The strength of our hobby is DIVERSIFICATION. The ability to choose what we do, and have a place to do it, within the minimal cost of reality (the corner store) that a hobby demands of our resources is what we have. Creating government or pseudo-government layers serve those who want to control our lives to the Nth level, but it stifles the creative process. What works in Newington or MACC land does not work universally. That is why our non universal system of band plans, users, and modes has worked to date.

But diversity and freedom is what big organizations fear. They fear what they cannot control. ARRL MACC and the bureaucrats do not want decisions made at the grass roots levels, where the effects are most felt. They want to control the process to continue their glorious past, feel omnipotent, create class distinctions, bigotry between modes, and licensees so THEY can save us.. What is needed is POLICY leadership. Not micro management. It should be written in stone in the FCC rules: no coordinator may ignore or refuse to coordinate any mode users allowed by the FCC rules. No mode is paramount to any other mode. ALL LICENSE HOLDERS MUST BE REASONABLY ACCOMMODATED.

There is not one of the 700,000 hams who could not walk away from the hobby and gain personal satisfaction somewhere else. This is a hobby, not a way of life. It is supposed to be FUN, not fraught with derision and remailer hate mail, and holier than thou attitudes. We have a volunteer system that has worked hard to voluntarily coordinate our interests to a minimum of interference. Those few who do not want to agree should go play elsewhere. To those who think the answer is big government, (you know, the folks who cannot fix the pot holes, but spent over a TRILLION dollars to fight "poverty," raise taxes, increase debt, and run every service at many times the cost of the private sector) the ARRL directors' Mendelsohn, Quiat and others, I say, GET A LIFE. If the FCC doesn't want to deal with the FM repeater problems, the coordinators infighting and politics, and the QRM to other band users and modes, let them say so in public. More government has never solved a problem, it only adds more.

For 90 years ham radio has survived in harmony. An iron suit of regulations that cannot adapt to the changes ham radio is now experiencing will serve no one. The have nots will simply walk away leaving an empty shell of selfish myopic regulators behind.

That's my last word on this topic. If you send in some technical material, next issue will be mostly technical. 73 Henry KB9FO

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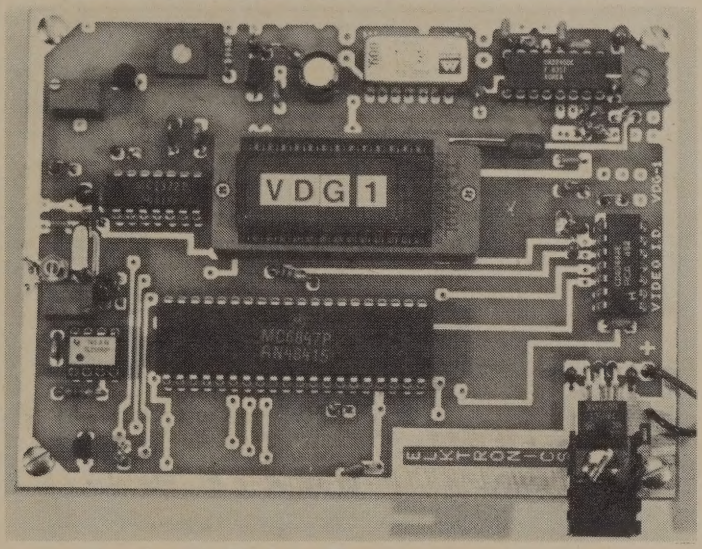

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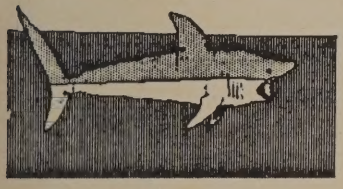

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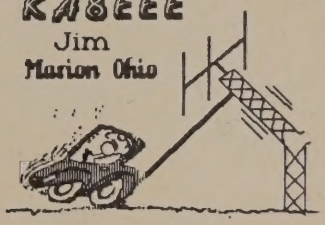

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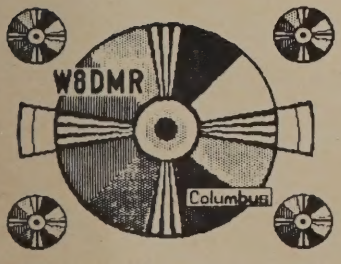

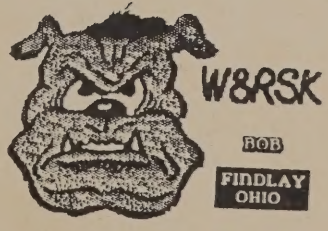

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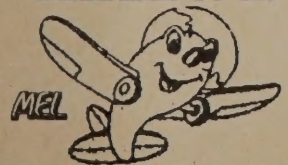

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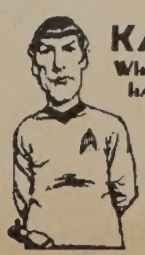

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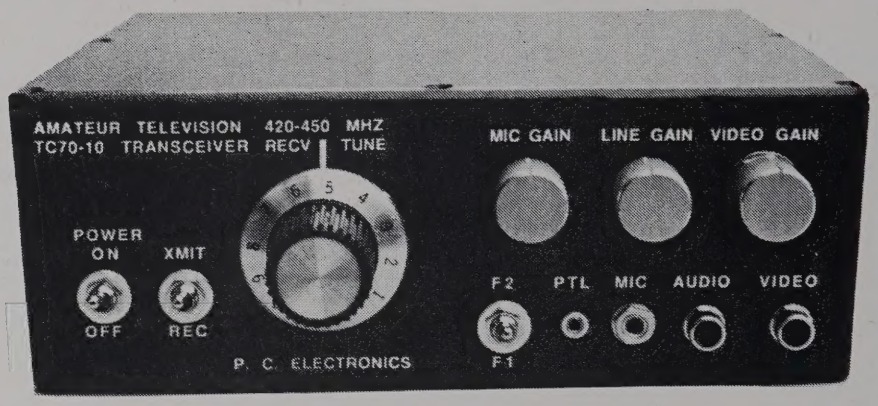

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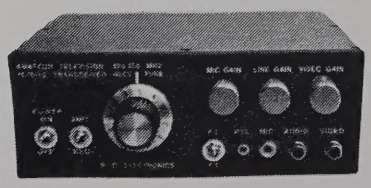

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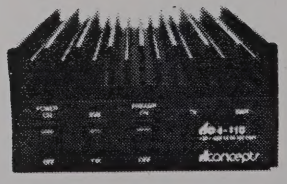

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Your video camera
or camcorder

TC70-10....$499
+ ATV Transceiver
10 Watts p.e.p. min.
Downconverter tunes 420-450 MHz
Req. 13.8 Vdc @ 3A power supply
Specify transmit frequency(s):
439.25, 434.0, 427.25 or 426.25 MHz

Optional 100 Watt Amplifiers
RF Concepts 4-110.....$359
Mirage D1010-ATVN ...$369
Req. 13.8 Vdc 25 Amp pwr supply

Antennas - see pg. 5

Rutland FO22-ATV		15.8 dBd	$139
Swiech COY43419EL		14dBd	$129
KLM	440-16X	14dBd	$139
KLM	440-10X	11 dBd	$77
KLM	440-6X	8.9 dBd	$60

[1]Remember when comparing prices, ours include UPS surface shipping in cont. USA. 1/96

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